AUG. 1 1958

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION

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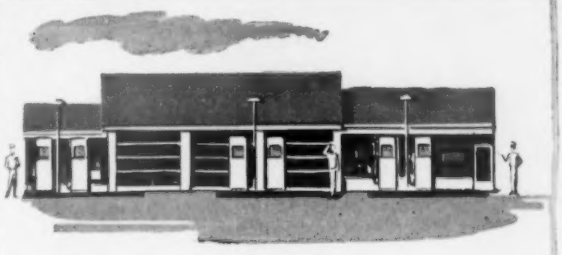

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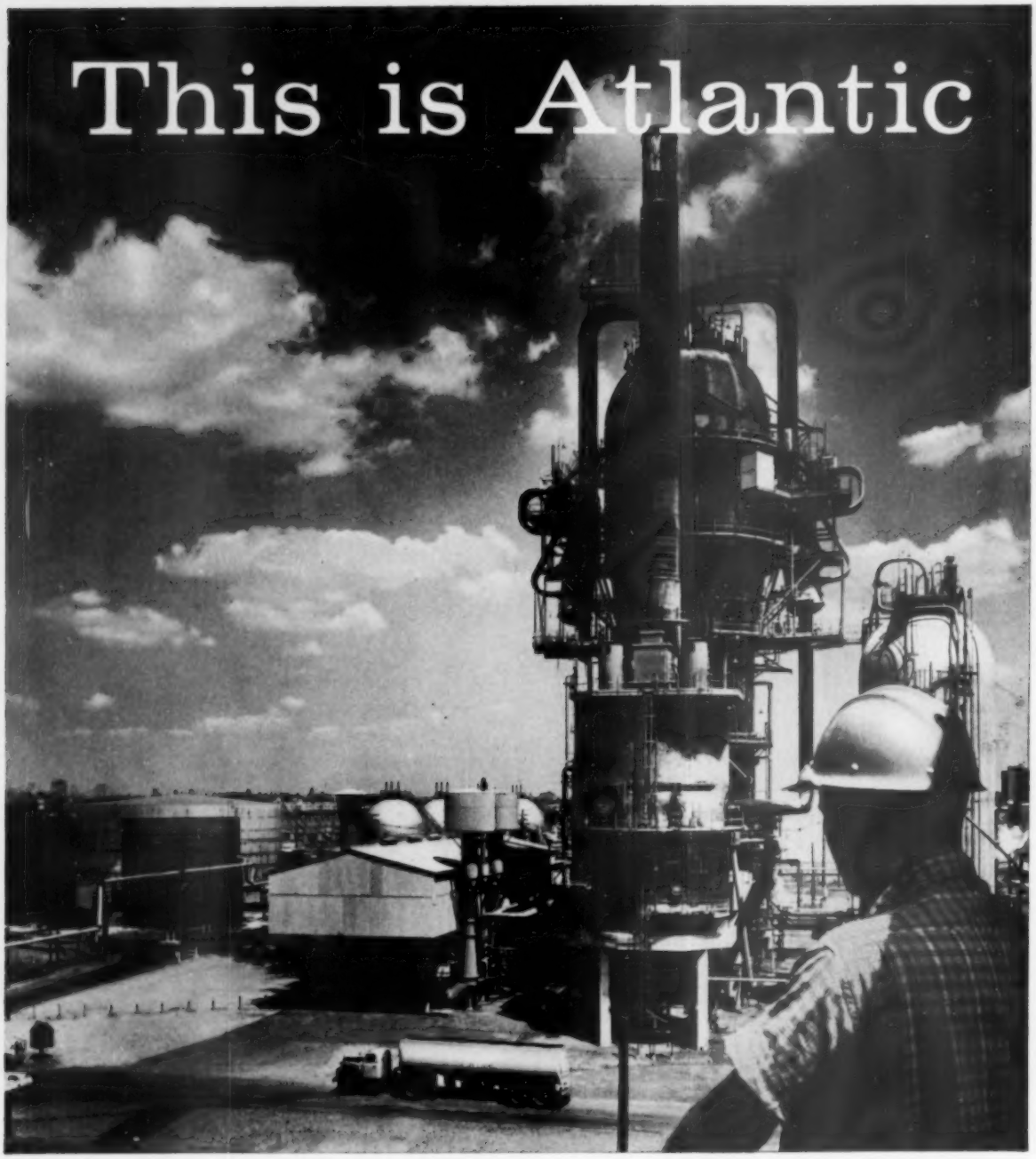

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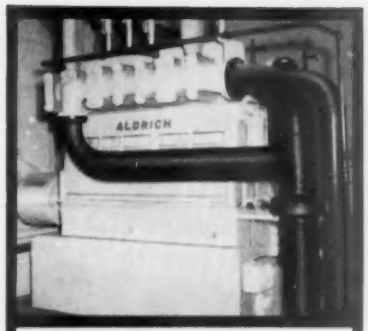

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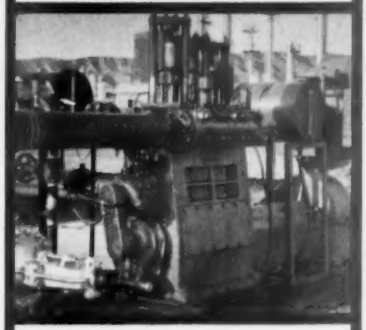

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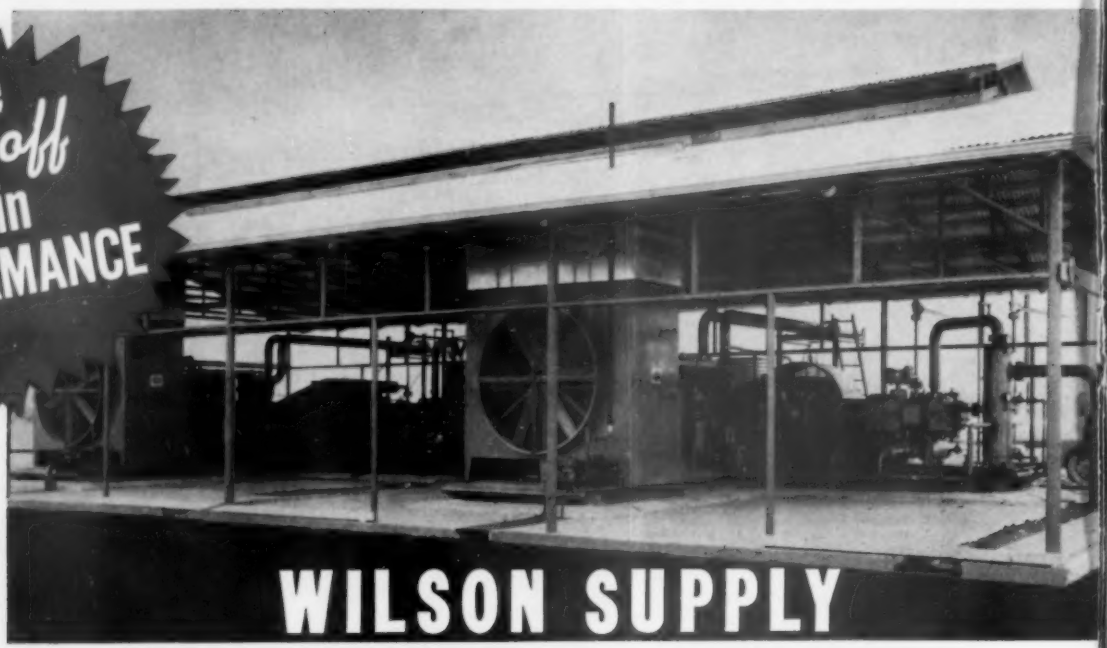

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60-Second Summary / WHAT'S HAPPENING IN OIL

August 1, 1958

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Bear in mind that Iran is a non-Arab country, outside of Nasser's sphere. That's important because Iran, with a tremendous oil potential, could—if necessary—replace the entire present output of the Arab world. . . . p. 15

•

Middle East turmoil may eventually provide the impetus for oil shale and tar sand development in North America, if political or economic pressures there should make the Arab area undesirable to U.S. firms or the U.S. government. . . . p. 11

•

How effective can the National Petroleum Council be now? Pressed by the Justice Dept., Interior Secretary Fred Seaton has prescribed new rules, including government cochairmen for the council and its committees. . . . p. 14

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The demand for oil equipment overseas is growing, but so is the supply. The increased activity for foreign manufacturers has heightened competition. . . . p. 48

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Hard cash is the main point of the Kuwait-Japanese oil agreement. Unlike the Saudi-Japanese pact, the Kuwait deal makes very little mention of integration. . . . p. 69

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U.S. firms are involved in Argentina's big oil deals. That nation, desperately needing foreign capital to power its drive toward oil self-sufficiency, finally worked out terms that U.S. and other firms would accept. . . . p. 70

•

Battle lines are being drawn as to who will transport LPG. The fight seems to be most imminent along the Southwest-to-East Coast "supply trail." . . . p. 39

•

A new turbodrill has scored high in efficiency on eight tests in the Herscher Dome area, Kankakee County, Ill. Drilling to about 1,400 ft., the unit reduced rig time by about two-thirds. . . . p. 28

•

Trucks have become a major factor in distribution of Southwest crude. Due largely to the small-field discovery trend, truckers handle 11% of output in Texas, Louisiana, Oklahoma, Kansas, and New Mexico. . . . p. 13

•

New emphasis has been placed on research to meet increased fuel competition. One company has installed a "rapid compression" machine to study precombustion reaction of fuels, and an automated treadmill that accommodates eight cars. . . . p. 72

Up to the Minute / SIGNIFICANT LATE NEWS

August 1, 1958

It's quite likely now that a crude pipeline will be built to Montreal refineries, even though the economics of such a line is still debated. The Canadian government would like to see the line built, and may seek to provide further incentive—such as allowing more exports of natural gas.

•

The Middle East situation is causing some head-scratching over tanker routings. Some firms, remembering that tankers were bottled up in the Suez Canal during the Suez crisis, are pondering whether to bypass the canal now as a precautionary measure. Others, who have been going around Africa to keep their tankers busy, may resume using the canal route to save time now that tanker demand has strengthened again.

The growth of supertankers has changed the picture since the Suez crisis. With ships big enough to go around Africa economically, shippers have more choice now.

•

Don't look for sharp industry reaction to changes being made in the National Petroleum Council (page 14). Most industry officials think NPC could work more efficiently under the old rules, but they won't make an issue of it now. They figure that if the government finds the changes hamper the organization's efforts in an emergency, the ground rules will be changed again.

•

Labor unions are warning members to watch their picket line conduct. The reason: a recent Supreme Court decision that permits damage suits against unions for picket line violations. The legal department of OCAW, the top oil union, is now advising its locals that unions must be more careful to avoid mass picketing and other picket line tactics that restrain a nonstriker from working.

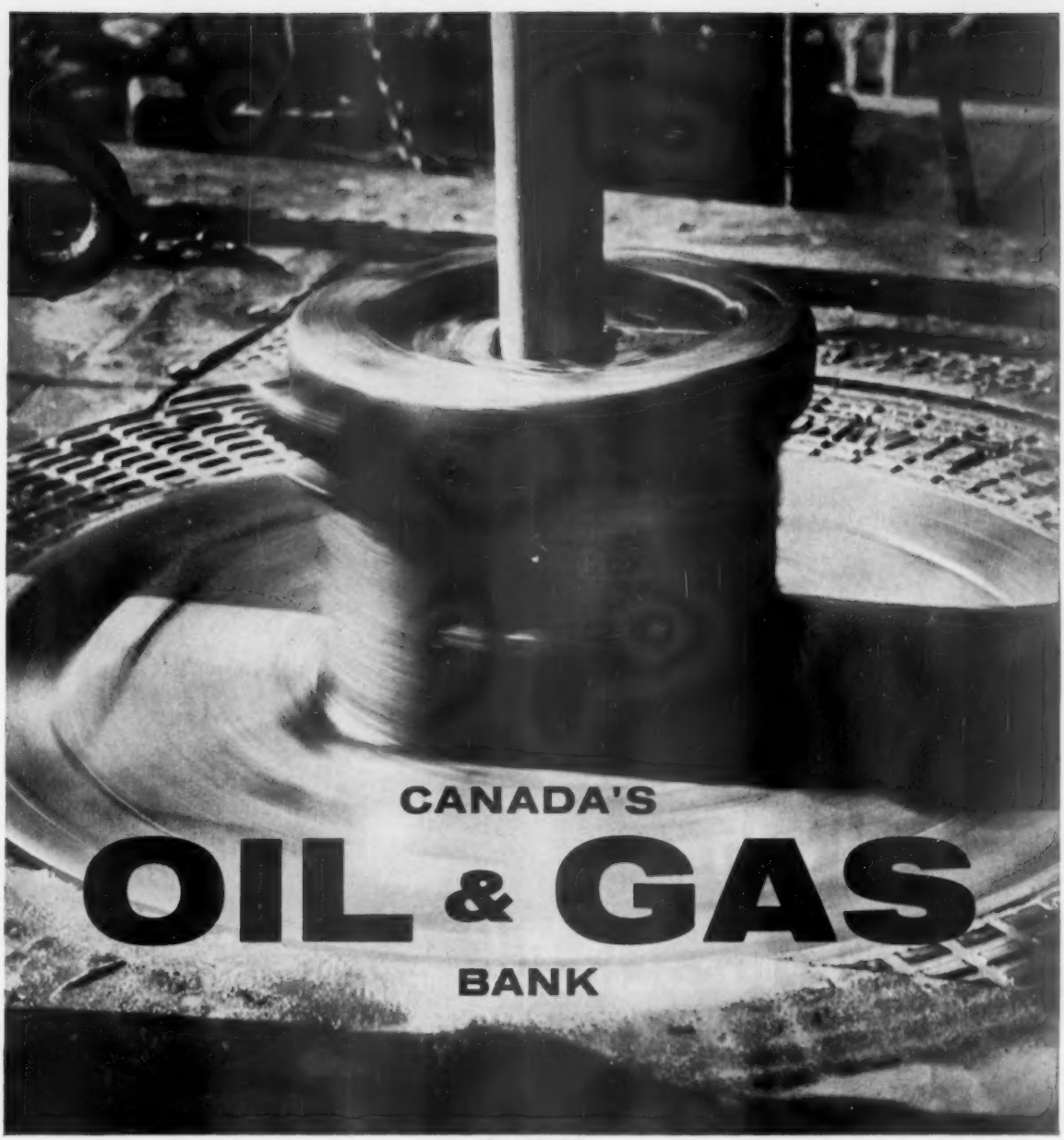
•

The oil industry soon will be paying more for the steel products it uses—if the steel price hikes made at midweek stick. This is particularly bad news for oil firms that had let their equipment inventories dwindle this year. But there is this cheering note: Apparently the steel companies figure the general economy has strengthened enough to absorb a price hike.

•

Gulf Oil cut crude prices in 25 Delta (La.) fields this week. It did so, it said, to make those crudes competitive again with similar available crudes. The new price is $3.30 a bbl. for crude of 40-44.9-gravity, with 2¢ per degree differential below 40-gravity—a reduction of 15¢ a bbl. In addition, Gulf imposed a penalty of 2¢ per degree on crude above 45-gravity, down to $3.08 a bbl. for 55-gravity and above. About 120,000 b/d are affected.

In Kansas, Vickers Petroleum raised its prices for Kansas crude 5¢ a bbl., bringing 40-gravity crude to $3.05 a bbl. Vickers says the increase is justified by recent product price increases and a "general strengthening" of the finished product market.



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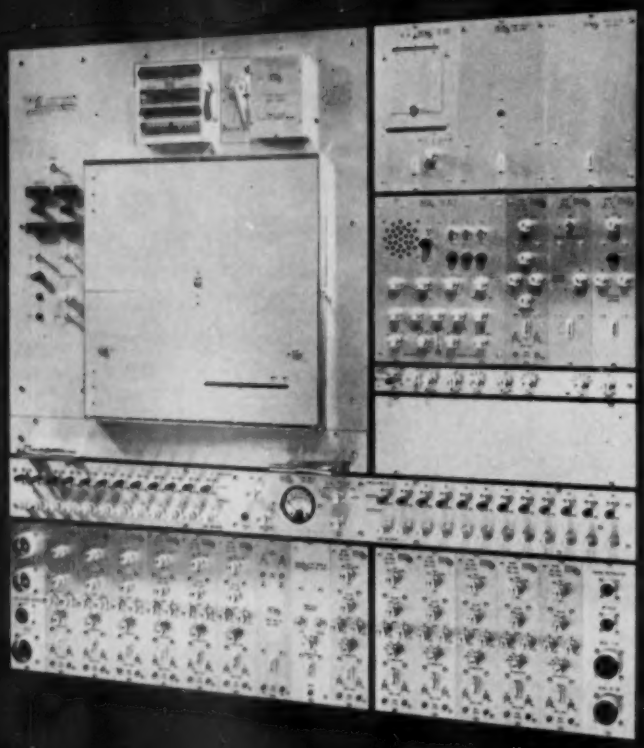

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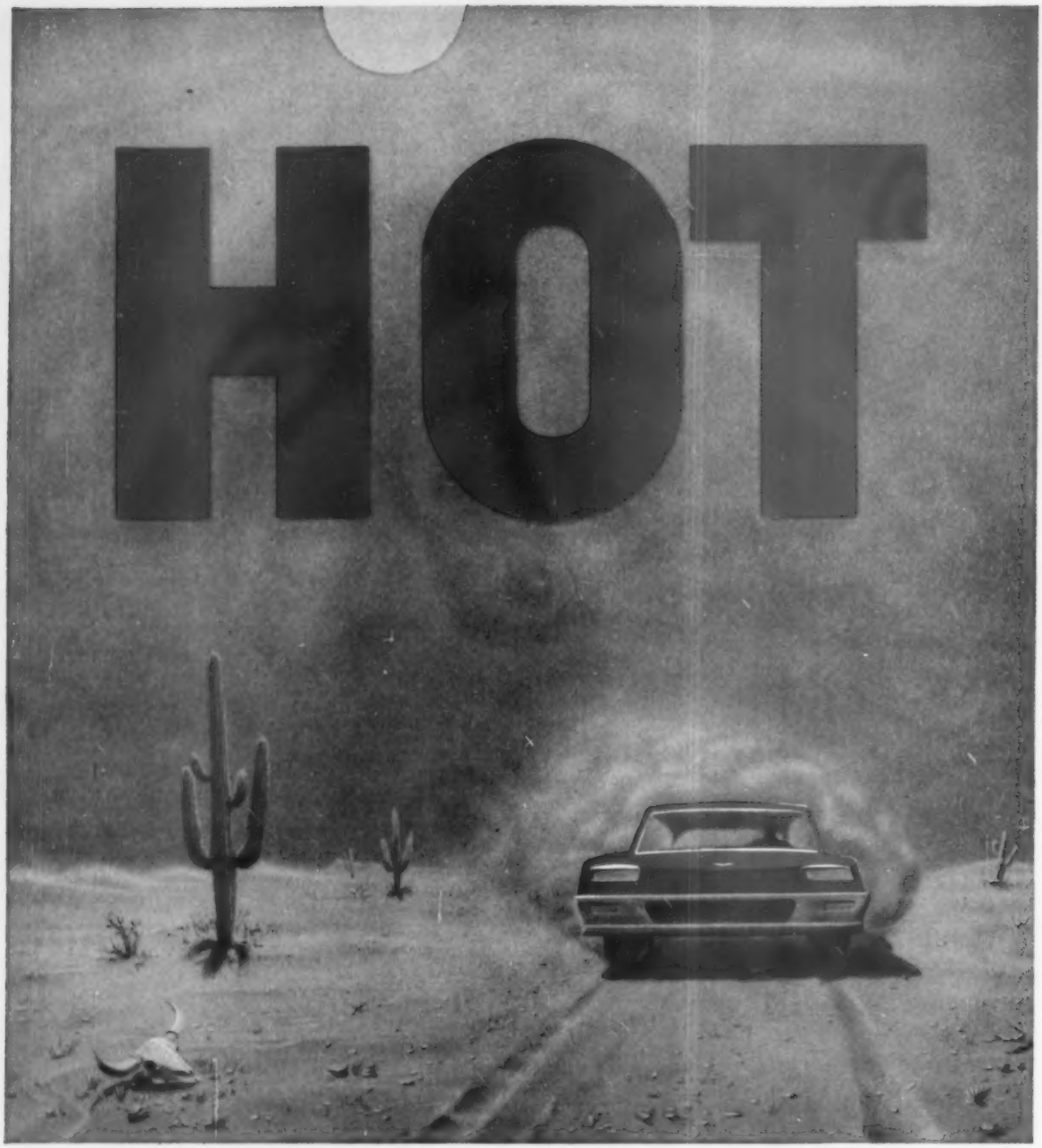

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Shale, Tar Sands Get New Impetus

The Middle East situation may spur new efforts in North America to tap the oil potential now locked in vast oil shale and tar sand deposits.

No crash program is likely unless a major emergency looms that would threaten a long-range loss of Middle East oil to Western nations.

Rather, the trend is apt to be a gradual one, with its momentum geared to such factors as further U.S. restrictive action against imports and to the economic climate in the Middle East.

If, as some anticipate, Middle East governments should press for larger and larger shares of oil revenues, U.S. firms may find investments there becoming less and less attractive. This, if coupled with unacceptable political action, could cause them to consider turning to shale and tar sands as a source of crude to supplement—when needed—the conventional domestic supply.

Obviously, only some extreme development would make this economically feasible in the near future. Basically, crude can be produced from the huge Middle East deposits at far less cost than from North American shale, tar sands, or coal—which potentially have greater reserves than Middle East crude.

Therefore, only nationalization or some similar step in Middle East producing countries would be apt to cause U.S. and other Western firms to withdraw completely. But less drastic developments could turn more of their attention to domestic sources.

If the political situation worsens greatly, the U.S. government may provide the incentive for a stepped-up domestic program.

If, for instance, the Arab nations should fall within the Russian sphere, the U.S. would seek to become independent of Middle East crude. The use of tax benfits, loan guarantees, or other incentives might be used to stimulate domestic development.

Or a critical economic situation might develop to prompt the U.S. to take active steps toward making this nation independent of foreign supplies.

Conceivably, a point could be reached at which Middle East governments might seek to market crude themselves—at cut prices. The resulting flood of crude into world and U.S. markets could swamp the U.S. industry unless protective steps were taken.

If high barriers were built to stem such a flood, the stepped-up demand for domestic crude would put an upward pressure on prices here. This, in turn, would tend to make shale oil and oil from tar sands more competitive.

Still a third possibility is that research may open the door to economic development of oil shale and tar sands.

Already, a great deal of progress has been made in this direction. Only a short time ago, for example, Oil Shale Corp. officials said flatly that shale oil is commercial today.

The firm, basing its statement on a study done for it by the Denver Research Institute, said that a basic Swedish process has been improved to the point that liquid fuels can be made from oil shale at costs comparable to fuels made from domestic crude. As a result, Oil Shale Corp. is planning to build a $3-million shale oil plant in Colorado.

Earlier in July, Union Oil Co. of California announced that it was closing its shale oil pilot plant, but said it would be in a position to move into commercial production when economic conditions permit (PW—Jul.4'58,p6).

A. C. Rubel, Union Oil's president, said results from the pilot plant indicated that a 25,000 b/d shale plant could, even now, deliver semirefined products to the West Coast at a price competitive with posted crude prices.

There is a possibility that some

Oil Man's Album

Time Was When Refining Was a Simple Process

This uncomplicated plant—California's first commercial refinery—was first built in 1876 to process crude from California's first commerical production in Pico Canyon, located a few miles away from the refinery site. The plant was rebuilt in 1930 as a memorial to D. G. Scofield and his associates of the California Star Oil Works Co. (California Star was a predecessor of Standard Oil Co. of California.)

(No. 15 in a Petroleum Week series)

entirely new technique—such as the use of atomic explosions—might speed the advent of oil from shale and from tar sands on a large-volume basis.

Both in the U.S. and in Canada there has been a flurry of interest by oil companies in the possible use of underground atomic explosions to melt sticky crude loose from shale and tar sand deposits.

Obviously, there would be many technical, legal, and other problems involved in the use of atomic explosions for such purposes. It may develop that the government itself may decide to conduct its own tests in shale or tar sands deposits.

It is known that several oil companies have discussed the bomb possibilities with the Atomic Energy Commission. So far, no specific plan has been presented to the commission for private use of the atomic bomb in underground experiments.

Aside from such measures as the use of atomic explosions, there are indications that private firms have advanced further in the shale and tar possibilities than is generally realized.

The Borden Commission, in preparing its interim report for presentation this fall, is understood to have the view at this time that some companies interested in tar sands development have tended to underplay—rather than to overplay—advances made toward commercial development.

Profits Picture Changes

Oil company net profits took a beating during the first half of 1958, as everyone had anticipated. But they may do better in the second half.

Of 12 companies that had reported by midweek, only one showed an increase over the first half of last year. The percentage drop ranged from 14.8% to 54.1%, with the average around 33%.

The only company to show a profit increase was Sinclair Venezuelan Oil Co., 96% owned by Sinclair Oil Corp. Sinclair Venezuelan's profit during the first half of this year was $11,192,740 against $3,716,397 for the first half of last year.

The main reason was a net production jump from 20,772 b/d to 54,102 b/d.

The companies and their reported drop in net profit are: Sun Oil Co., 54.1%; Socony Mobil Oil Co., 46.8%; Gulf Oil Corp., 42.6%; Shell Oil Co., 39.4%; Standard Oil Co. (N. J.), 37.2%; Imperial Oil Ltd., 35.9%; Ohio Oil Co., 32.1%; Phillips Petroleum Co., 32%; Sunray Mid-Continent Oil Co., 22%; The Texas Co., 16.1%; and Continental Oil Co., 14.8%.

Substantial cuts in all phases of company operations, such as building and exploration, kept the net earnings from dropping even more than they did.

Most of the companies attribute the drop to depressed selling prices and continued high operating costs.

Blame for the depressed market goes to the overproduction that developed after the Suez crisis and the sharp drop in exports that followed.

This produced a heavy oversupply in the American market. And although U.S. demand has remained fairly steady, the heavy inventories of crude and products have caused prices to drop, while operating costs stayed the same or even increased.

The cut in production because of strict proration and oversupply further chopped into profits.

Generally, the feeling among oil companies is that the second half of '58 holds a brighter outlook, and signs of this are already becoming evident.

Higher production allowables and firming retail prices already point to a better second half.

In fact, some improvement has showed up in the second quarter, as evidenced by Continental Oils Co.'s figures: Its drop for the first half of 1958 was 14.8%. But most of this was experienced in the first quarter. The second quarter showed a drop of only 5.6%.

Oil: A Key Topic Around the World During These Tense Days

The tremendous importance of petroleum in the world picture is again being demonstrated as the struggle for control of Middle East oil resources mounts.

Last week, oil was the conversational piece wherever top officials gathered. The above pictures show two examples:

- **In Washington, government officials met with top oil industry leaders to discuss a proposed emergency oil plan. Included were Matthew C. Carson, director of the Office of Oil & Gas, left; S. P. Coleman, Standard Oil Co. (N. J.), and Interior Secretary Fred Seaton.**
- **In Syria, Abdel Gamal Nasser, president of the United Arab Republic, with Sheikh Abdullah Salah, ruler of Kuwait.**

Natural Gas Field Prices Are Rising

The growing demand for natural gas is continuing to exert a heavy upward pressure on prices. Note what is happening in the West Texas-New Mexico region.

Transwestern Pipeline Co. is paying up to 23¢ per thousand cu. ft. for an initial gas supply for its proposed line from West Texas and adjoining regions to the California border. This is an area where 10¢ had been a common price until recently.

Transwestern is seeking approval by the Federal Power Commission for a 1,300-mi. big-inch line, which would cost $193-million. The initial application was submitted last April (PW—Apr.18'58,p17), and an amended application was filed last week.

Contracts calling for the 23¢ price have been signed with Warren Petroleum Co., Magnolia Petroleum Co., Humble Oil & Refining Co., Sun Oil Co., and Gulf Oil Corp. After Sept. 1, 1969, the price will go up to 26¢.

Contracts with other firms have different terms.

At least one contract specifies a price of 27.2¢ after ten years.

Data filed with FPC show that Transwestern has a contract with Richardson & Bass for an initial payment of 21.8¢ per thousand cu. ft. from the commencement of the contract until Sept. 1, 1969. At that time, the price would go to the 27.2¢ level.

Transwestern also would reimburse Richardson & Bass for up to seven-eighths of any gathering taxes, or other such taxes, that are added after the contract begins. This would be in addition to the original price.

Some of the gas Transwestern is buying will not run that high. At least one contract price will be 12¢ initially. Later, it will rise to 17¢.

The price for all the gas Transwestern has contracted for will average 18.27¢ per thousand cu ft. during the first year of operation. The second year the average will be 18.4¢.

One big question the buyer and the selling companies face is whether FPC—or the courts—will let the contracts stand.

Observers point out the difficulties the CATC group has had in its efforts to sell offshore natural gas to Tennessee Gas Transmission Co.

Originally, the contract had called for a price of 22.4¢. FPC first knocked the price down to 17¢. When the producing companies refused to sell at that price, the agency reversed itself and approved the original application. A 1¢ tax is included in the total.

The issue was taken to the courts and hasn't been settled yet.

In another case, an FPC hearing examiner recently approved sales of gas by 26 independent Louisiana producers to Transcontinental Gas Pipeline Corp. at prices ranging from 22.4¢ to 23.3¢.

However, the examiner's action will be reviewed by all members of the commission.

FPC has been seeking to avoid attaching price conditions to initial gas certificates, but a strong effort is being made to force the agency to specify the initial prices.

Unless the courts finally rule in the agency's favor, such projects as Transwestern's are likely to face considerable difficulty in getting prompt certification.

Nevertheless, FPC itself has been aware of the fact that natural gas prices in the field have been steadily pushing upward because of spirited competition between the pipeline companies for an assured supply to meet rapidly expanding demand.

Transwestern's original goal for its project was to get quick FPC approval so that work could be started this year, with gas delivery through the system by the middle of 1959.

The gas is to be sold to Pacific Lighting Gas Supply Co.

The main line—30 in. in diameter—will run from Roswell, N.M., to Topock, Ariz. It will be fed by 24-in. laterals which extend into the Texas and Oklahoma Panhandles, and which converge at Roswell.

TRANSPORTATION ECONOMICS prevent pipeline connections to low reserves, but . . .

Truck 'Outlets' Aid Small Fields

Truckers have become a major factor in Southwest crude markets and will continue to increase in importance as long as the discovery trend is towards fields of small reserves.

The truck transporters got their start as small, short-term haulers of crude from new leases. In most areas, expanding pipelines would eventually connect to such fields and the trucking contractors would have to follow the wildcatters into newer areas.

Trucking was an expensive and not always an efficient form of transportation. But within the last five years larger contractors have streamlined their operations to the benefit of both producers and purchasers.

Truckers now handle an estimated 15-million bbl. of crude a month in the major producing states of Texas, Louisiana, Oklahoma, New Mexico, and Kansas. That is the equivalent of 11% of the current output in those states.

A substantial additional amount is moved by truck both to refineries and pipeline terminals in the smaller producing states.

In Texas, for example, trucked crude amounted to less than one-half of 1% of the state's production 10 years ago. Today, an estimated 5% of the state's crude is moved by truck. In some districts, the volume is much higher.

J. S. Lauderdale, president of the West Central Texas Oil & Gas Assn. estimated at the July statewide Rail-

road Commission hearing that 11.5% of the crude produced in West Central Texas (District 7B) is transported by truck.

Some of the larger truck transporters of crude have become integrated crude purchasing companies, issuing their own division orders for buying crude and in some states directly nominating to purchase oil.

In some areas, particularly in parts of West Texas, northern Oklahoma, and Kansas, truck transportation has been the only outlet for producers.

The truckers furnish the basic service provided by any crude purchasing company—finding a market for producers.

And by becoming purchasers as well as transporters, the trucking contractors go beyond the service provided by pipeline companies which only move crude—not buy it.

And as purchasers, issuing division orders for payment to numerous interest holders on individual leases, the truck contractors have had to create large staffs—attorneys to examine lease titles and accountants to handle run tickets, tenders, and reports required in various states.

A few of the larger contractors have branched out into pipeline gathering operations, through participation with producers in a move to reduce transportation costs.

Such lines are usually amortized by a per barrel charge to producers using the gathering system. In the long run, though, such gathering systems provide producers with a connection to a trunkline system at less cost than truck hauling connections.

Such producer-trucking contractor gathering lines have sprung up in areas where the reserves are not large enough in the opinion of pipeline companies to justify the investment of building their own gathering system.

In some cases producer-trucker participating gathering lines are operated by the trunk pipeline system to which they connect.

The growth in truck transportation of crude in recent years can be attributed to a great extent to improved well completion and production techniques that make commercial wells out of what once would have been considered "dry holes".

Such techniques include the great advancements made in logging, perforating, and fracturing.

Improved techniques enable producers to complete wells with comparatively low reserves. Such reserves are not of sufficient volume for a pipeline payout period which most companies figure at from six to eight years.

NPC Faces Restrictions

With lumber supplied by the Justice Dept., Interior Secretary Fred A. Seaton this week built a fence around the National Petroleum Council.

Seaton put forward a compromise five-point program to bring NPC into line with Justice Dept. rules for all industry advisory committees.

Seaton on July 22 wrote to NPC Chairman Walter S. Hallanan asking for the council's "decision and action" on the rule changes.

Seaton wants government cochairmen for the council, its committees, and, where feasible, its subcommittees.

The cochairman plan is the heart of the compromise. NPC always has operated under an industry chairman. The Justice dept., wanted a government chairman. Now NPC will have both.

Members appointed to any committee or subcommittee of the council will be subject to approval by the government cochairman.

The Secretary of the Interior or his full-time government appointee will serve as the government cochairman and "shall have equal rights and authority" to that of the industry chairman.

The government cochairman will have the authority to call any meeting to a close "if he feels it is being improperly used." This authority is designed directly to avert discussions among oil industry members that might be drifting into antitrust, price-fixing, and monopoly areas.

Meetings of the council, including committees and subcommittees, will be at the call of the government cochairman, "and the agenda for such meetings shall be formulated by the government."

Comprehensive minutes will be kept of all meetings, even down to the subcommittee level. One "duplicate original copy" will be kept by the industry cochairman. The government cochairman will have custody of the other.

Initial reaction of oil men at midweek was a cautious wait-and-see attitude. But one oil man said, "We'll have to go along. We have no choice."

There was a feeling, apparently, that the present Seaton plan was the best that could be obtained under the circumstances by the NPC negotiators—Hallanan; J. Howard Marshall, of Signal Oil & Gas Co.; and Hines Baker, of Standard Oil Co. (N. J.).

Fights over its organization and functions are nothing new for the 12-year-old NPC.

Because NPC was not classed as a "defense committee," there was no statutory authority for granting it antitrust immunity.

This meant that as far back as 1946 Justice Department had to approve the council's advisory activities, but insisted they be carried out under certain prescribed regulations.

This "blessing" was given reluctantly by the Attorney General at that time, Tom Clark.

He made an oral agreement with the Secretary of the Interior to send all minutes of NPC meetings to one of Justice Dept.'s top antitrusters. Clark also wrote a letter to the Interior Secretary spelling out what the committee could and could not do.

NPC got caught in a cross-fire between the Justice Dept., which wanted the activities of NPC curtailed as sharply as possible, and the Interior Dept., which strongly defended NPC as one of its key advisory groups.

The tug-of-war continued through the Korea conflict, culminating in the so-called "green light" letter given to NPC by Interior Secretary Oscar Chapman.

This letter was approved by the Attorney General.

But the air had scarcely cleared at the executive branch when clouds began to appear on Capitol Hill and an investigation followed.

And that, in part, is why his five-point plan came out this week. Seaton has already charted a course for NPC for the future. But, as of now, there's some doubt about the willingness of the crew to sail.

Paging Elvis Presley

Rock 'n' roll music, the current fad of the younger set, may be a small blessing in disguise for the oil industry.

Esso Research engineers noted during recent road tests that rock 'n' roll music on a car radio can cause a driver to jiggle the accelerator pedal in rhythm with the music.

This manipulation, the engineers say, can cause a significant increase in gasoline consumption.

Man, with a flock of Elvis Presleys, the industry could soon dispose of surplus gasoline stocks.

Not All in the Same Boiling Pot

If the Western World is to appraise correctly the security of its access to vital Middle East oil supplies, it must keep at least one point in mind:

One giant Western oil source in the Middle East lies beyond the reaches of Nasserist pan-Arabism—non-Arab Iran (also called Persia).

The loose habit of lumping Iranian oil with the three Arab states of Iraq, Kuwait, and Saudi Arabia in one common label, "Middle East oil," tends to give many people the impression that all the vast oil of the Middle East—some 70% to 80% of the free world's total proved reserves—is bubbling in the same political pot.

This definitely is not so.

* * * *

This is an important point because Iran's oil potentials are so huge they can make a great difference to the way the West's hand stacks up in the Middle East poker game.

Knowledgeable oil circles regard Iran's oil potentials as bigger than those of any Arab state, large as the oilfields of the latter are. Officially, and most conservatively, proved oil reserves in the consortium area alone (merely a narrow strip in southwestern Iran) are now listed at 32-billion bbl.—more than the U.S. total and twice that of Venezuela. But competent geologists in that region say the actual known reserves are more on the order of Kuwait's listing of 60-billion bbl. This means that Iran's presently known oil reserves are about as large as those of the entire free world put together (including the U.S.) outside of the Middle East.

Furthermore, a recent geological study concluded that the consortium area still had so many huge potential oil structures that are still undrilled as to be "embarrassing." (And none of this takes into account the additional promising areas in Iran outside the consortium area now about to be drilled.)

In short, Iran has the oil reserves to sustain easily a production several times its current export capacity of about 900,000 b/d. Not only are the individual fields large, but the output per well is huge (averaging 20,000 b/d in some fields), and the oil is easily accessible through relatively short pipelines to the Persian Gulf.

If need be, Iran could—given a little time—replace the entire 3,000,000 b/d present output of the Arab world.

* * * *

Iran not only has no ties with Arab nationalism, but views with open alarm the spread of Nasserism (Much as the Turks do). It regards such a development as a threat to its geographical position, since this would wedge Iran between the Soviet Union on the north and an Arab power to the south and west increasingly friendly to Moscow.

The Shah of Iran publicly backed the use of U.S. and British military forces in Lebanon and Jordan. And he recently invited the rulers of the Arab Sheikhdoms in the Persian Gulf on good-will visits to Teheran in an apparent hope of bolstering them against the pull of Cairo.

But what if the present government of Iran were overthrown some day? Would the Iranians then be likely to join some possible future Arab oil boycott of the West?

Even then this would be most unlikely. Iran may have crises of its own, but they would be due to its own internal problems, not to any forces of Arab nationalism. Even during the Mossadegh crisis, Iran did not turn toward the Arabs; in fact, Arab oil replaced Iran's.

Except in the southwest corner of the country bordering on Iraq, where there is a substantial pocket of Arabs, there are no pictures of Nasser in Iran's teeming bazaars.

The Iranians are not only a "non-Arab" people, and non-Arabic speaking, but they tend to regard the Arabs with little-concealed scorn. As a rule, the Iranians look down on the Arab civilization as inferior to their own. They point with pride to the fact that Iran is the home of the great Aryan civilization ("Iran" means "Arya") which through the centuries opposed the Semitic (Arab) peoples to the south.

Unlike the Arabs, too, the Iranians have had a long history of struggling for independence against the Russian and Mongol invaders from the North (a large part of former Iranian territory now lies within the Soviet Union). Most Iranians are aware that, with their 1,000-mi. common frontier with Russia, they cannot hope to survive as an independent nation without Western help. Generally, they are not inclined to play footsie with the bear that walks like a man.

* * * *

All this strongly suggests that Western oil planners should put special emphasis on building up Iran's producing capacity as potential insurance against Arab oil crises.

Significantly, too, every American and British company with concessions in Iraq, Saudi Arabia, or Kuwait also holds shares in the Iranian consortium. Though some of the shares are small, a step-up in capacity could result in considerable oil volumes.

If Iranian oil is not the West's trump card in the Middle East picture, it is at least an ace.

What's New / IN THE INDUSTRY

The president of Alaska Oil & Mineral Co. says a "crash program" to develop Alaska's oil potential is now a must, in the light of the Middle East crisis and estimates of "dwindling" U.S. crude reserves. Theodore A. Zappa last week asked President Eisenhower to set up such a program in order to start Alaskan oil flowing to the U.S. by 1960.

•

Kansas and Arkansas have hiked their production allowables. The Kansas Corporation Commission set the state's August allowable at 330,000 b/d, up 20,000 from July. The state per well minimum is up 5 b/d in all classes.

The Arkansas Oil & Gas Commission, meanwhile, restored that state's production allowable to its Feb. 1 level—85,000 b/d. This permits an increase of 15 b/d for wells in nonunitized fields making 35 b/d or more. In unitized pools, an increase of 18% over current rates will be allowed.

•

The Organization for European Economic Cooperation has just held a special meeting on the Middle East situation. OEEC, not scheduled to meet until September, convened in Paris early this week. It is considering reestablishing its Petroleum Emergency Group, which helped keep Europe supplied with oil during the Suez Canal crisis.

•

Sinclair Pipe Line Co. will increase its West Texas-to-Gulf Coast crude line capacity this fall, "because of the international oil-supply threat," the company said this week. Sinclair now expects to have its planned 43,000 b/d, 12-in. line between Wichita Falls and Jacksboro, 60 mi. south, in operation by mid-September. The line would take West Texas crude from the Basin System at Wichita Falls and deliver it at Jacksboro into Sinclair's just-finished "Texas Big Inch" system to Houston.

•

The Teamsters are applying more muscle in trying to organize service station employees. A grand jury investigation in Cook County, Ill., was told last week that 17 dealers there, after opposing organization of their employees by Teamsters Local 705 of Chicago, have now "accepted" the union.

•

Note this trend among oil companies: more recognition and promotional opportunity for "full-time-and-forever" research scientists. Continental Oil Co. is the latest to begin a program to insure equal advancement opportunity for scientists who prefer to concentrate on research rather than take on "diverting" administrative and supervisory responsibilities.

•

Champlin Oil & Refining Co. has raised its posting for Oklahoma sweet crude by 5¢ a bbl. to $3.05, affecting about 20,000 b/d of 40-gravity crude as of Aug. 1. The company calls the increase a restoration due producers.

•

Employees of jobbers do not come under the jurisdiction of the federal wage-hour act. That's the effect of a decision handed down this week by the U.S. Fifth Court of Appeals, which ruled that the "typical" jobber does not operate in interstate commerce.

INSIDE *Slant*

WIDE SPACING NEEDED EARLY

Wider spacing in the early development of oil fields would greatly help regulatory officials.

Much has been said by some industry spokesmen on the need for wider spacing, but few companies have put it into effect during early development.

And that is when the decision should be made, according to Ernest O. Thompson, senior member of the Texas Railroad Commission.

He made this clear in meetings with various oil company officials in New York City last week.

His opinion is that if there is to be wide spacing then the early wells should be drilled on an 80-acre or even 160-acre pattern.

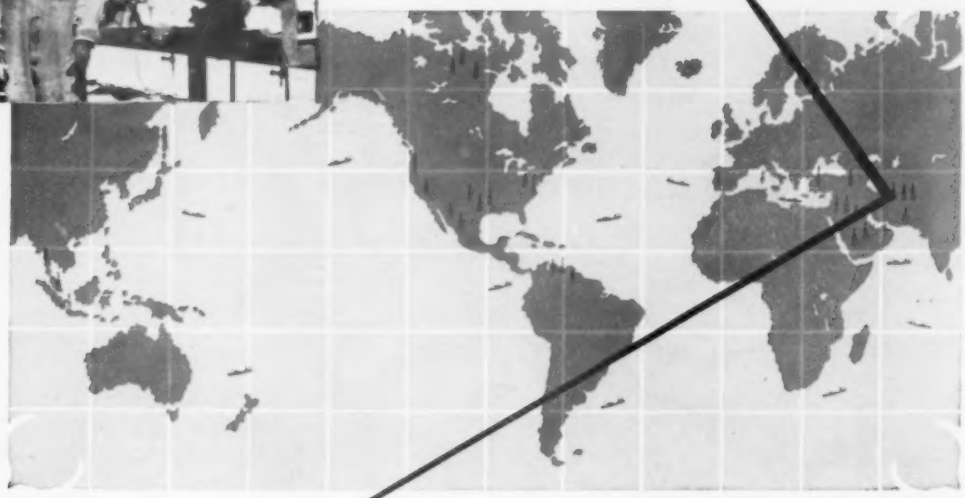
But it is up to the companies to initiate early wider spacing. Rules and regulations of the majority of conservation-minded states call for minimum spacing patterns, not maximum ones.

Therefore, if the companies initially drill on wide patterns and engineering data later shows closer spacing is needed to drain the reservoir properly, it is easy to go to 40-acre spacing, or even less, by in-fill drilling.

But once the field development is started on a pattern of 40 acres or less, it is difficult to shift to wider spacing without causing inequities.

LeRoy Menzing
EDITOR

خدمة تريتولايت



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AP-58-3

Looking Ahead in Washington

McGraw-Hill
Washington
Bureau

August 1, 1958

Congress is aiming for a mid-August adjournment. About the only major oil item still on the agenda is an impending Senate attack against the depletion provision, and it is expected to be unsuccessful.

The big oil and gas issues are over for the year. The controversy over natural gas regulation never got off the ground. Oil imports arguments wound up in a virtual stalemate. In fact, the industry seems to have broken even during this session of Congress: Except for a brief furor over the gas bill, the session has been a comparatively easy one for the industry to weather, but, on the other side of the coin, oil and gas have made no major gains in Congress this year.

•

The government thinks its new oil emergency program is an improvement over the 1956 plan. Whether or not the revised plan is used in the present Middle East turmoil, it probably will stay on the books for future use. Here are some advantages Interior Secretary Fred Seaton thinks the new plan has: Oil companies with wholly domestic operations will be included in the membership of any emergency body; the plan expressly recognizes a potential stoppage of production, as well as transportation difficulties; and a full-time government official—not an industry man—will be chairman of the main committee. However, industry men will head up the working subcommittees.

•

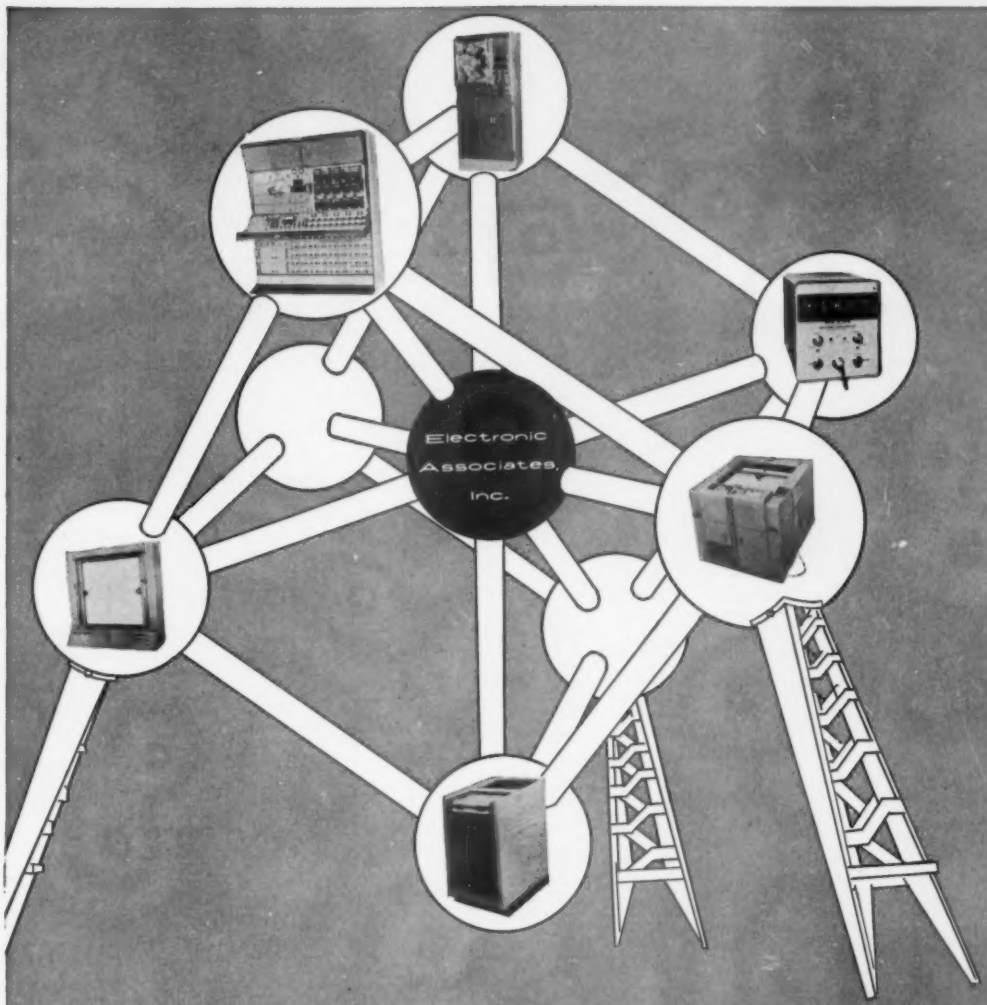
The U.S. is still keeping a close watch on Venezuela's political troubles, although the situation there does not appear so tense since the military group failed in its recent effort to upend the ruling junta. There were reports of oil field workers demonstrating in favor of the junta during that crisis. The State Dept. does not foresee any difficulties now for U.S. oil operations in that country, and there will be a chance to improve U.S.-Venezuela relations soon when Adm. Wolfgang Larrazabal goes to Washington for an official visit.

•

Washington expects Canada's Borden Commission to make an interim report by fall. Government officials and natural gas industry representatives are hoping for the petroleum policy action by October or November—before the Federal Power Commission is expected to rule on the controversial Midwest gas case. An interim report by the royal commission probably will give some strong clues to the final conclusions, expected to be announced next year or in 1960.

•

Independent producers are opposing a "national wilderness" preservation system that's being pushed in Congress. A Senate bill to create more recreational facilities is being fought by the Independent Petroleum Assn. of America, which argues that the full and proper multiple use of public lands would be barred. IPAA wants clear authorization for exploration and development of petroleum resources on any restricted wilderness land. The bill is in the Senate Interior Committee, but has little chance of clearing Congress this session.



Equipment pictured:
(Clockwise from bottom)
8 Channel Recorder,
Transitorized Variplotter,
Analog Computer 231 R,
Magnetic Tape Plotter,
Portable, all-Electronic Digital Volt meter,
Dataplotter.

BY INVITATION OF THE U. S. STATE DEPARTMENT, Electronic Associates, Inc. is representing the Analog Computing and Plotting Industry in the United States at the Brussels World's Fair. A working exhibit of the PACE Analog Computer is being manned by personnel supplied by Electronic Associates, Inc., European Computation Center.

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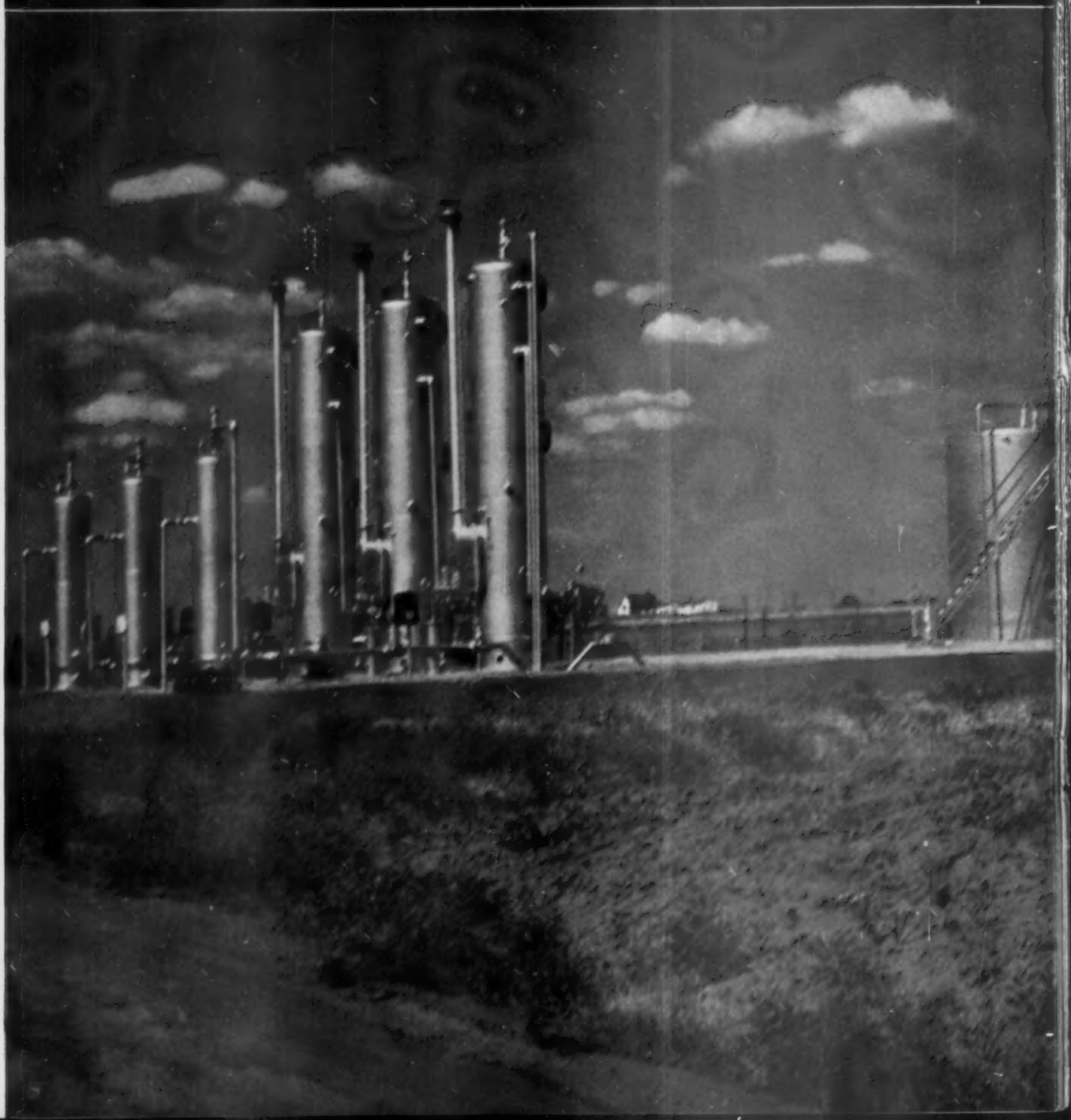

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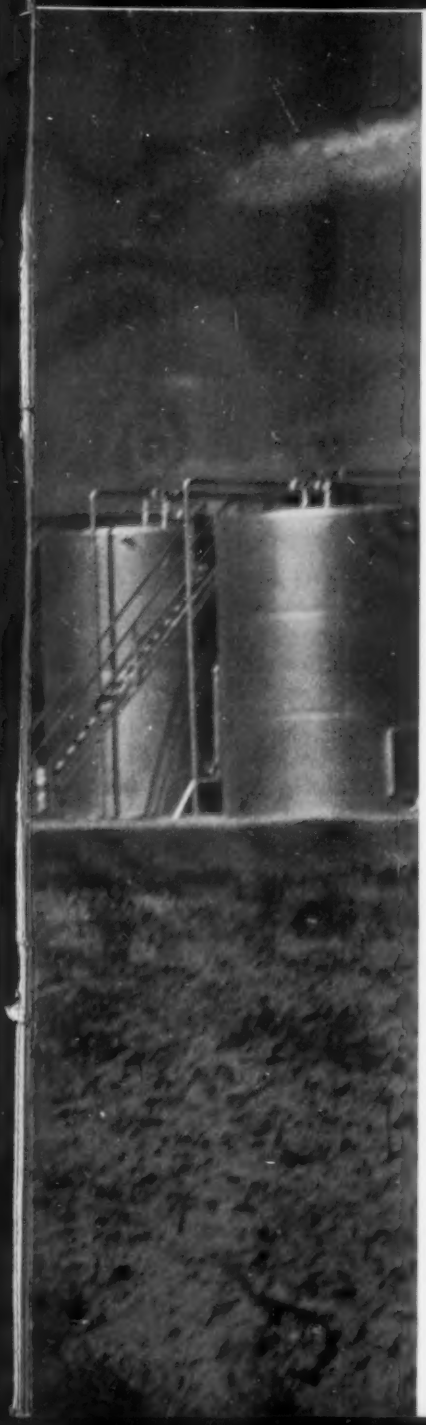

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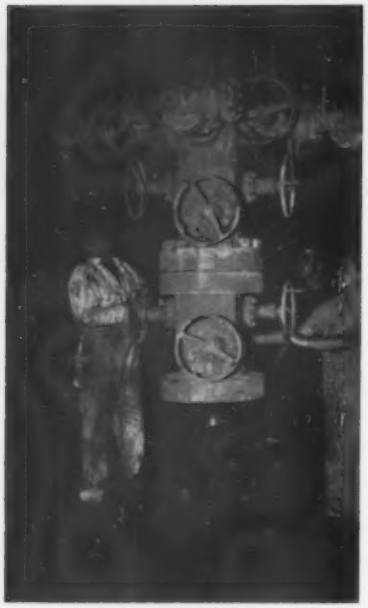

FOUR TUBING PLACEMENTS (left) are inspected by (left to right) G. O. White, Brown Oil Tool Co.; Ed Hilburn and Bob Henderson, CATC group; Doug Boyd, Cameron Iron Works; and D. J. Maxwell, Brewster-Bartle Drilling Co. Tree is lowered (right).

How 4-String Quadruple Was Completed

Significant new equipment and techniques have made the world's first offshore quadruple completion an important milestone in drilling and production practices.

The history-making well—No. 8-C State Lease 970, West Delta Block 30 field—was completed last month by the CATC group (Continental Oil Co., Atlantic Refining Co., Tidewater Oil Co., and Cities Service Production Co.) Conoco serves as operator for the group.

The well was directionally drilled a lateral distance of 1,326 ft. from the surface location—a self-contained platform 12 mi. off Plaquemines Parish, in the Gulf of Mexico.

The quadruple completion is only the second such, and followed by about a month the completion of the first quadruple completion—by Magnolia Petroleum Co. in Hidalgo County, Tex. (PW—May30'58,p27).

On completion, CATC's No. 8-C State Lease 970 flowed a total of 1,124 b/d of oil and 541,000 cu. ft. of gas from four different pays between 9,022-789 ft. Production was through four strings of tubing—an industry first.

The Magnolia quadruple produces through three tubing strings and the annulus between tubing and casing. This is like a triple completion, except that another zone was perforated above the top packer.

Here's what each of the four Miocene zones produced: C-8Q, 241 b/d of 29-gravity oil through perforations at 9,022-27 ft.; C-8T, 296 b/d of 29.8-gravity oil through perforations at 9,282-87 ft.; C-8D, 287 b/d of 32.2-gravity oil through perforations at 9,539-44 ft.; and C-8, 300 b/d of 27.8-gravity oil through perforations at 9,784-89 ft.

Hydril CS tubing was used. The longest string is 2⅜ in. all the way. The other three strings are 2 1/16 in. below the quadruple packer, and 2⅜-in. above it to the surface.

The CATC group drew on its wide experience with dual and triple completions to map plans for the quadruple completion.

The CATC group has dually completed 25 wells and 12 triple completions.

The group's success with the triple completions led to the belief that a quadruple completion could be made.

During the initial planning stages, it was concluded that a well would have to have the following characteristics for a quadruple completion:

(1) The producing zones should be relatively close together.

(2) The four zones should show promise of a long producing life.

(3) The well should show a possibility of a long flowing life, so that artificial lift or rework would not be necessary during the early productive stages.

Study convinced the group that the No. 8-C satisfied these requirements in all respects.

The group also called in representatives of completion equipment manufacturing companies to discuss what was needed to make a quadruple completion.

The representatives were told to bring all the information they had that would contribute to such a completion.

The meeting had the desired results, and contracts for special equipment were awarded within a matter of days.

The special Christmas tree for the installation was designed, forged, manufactured, tested, and delivered by Cameron Iron Works, Inc., in only 18 days after the order was placed.

The first quadruple string solid-block tree in the oil industry is made of a special alloy. The entire tree is made of three solid, forged-steel blocks—one for the tubing head spool, one for the four master valves, and one for the four-tree valve.

The solid blocks eliminate flanges, sources of possible leaks and blowouts. They also make the trees lighter, more

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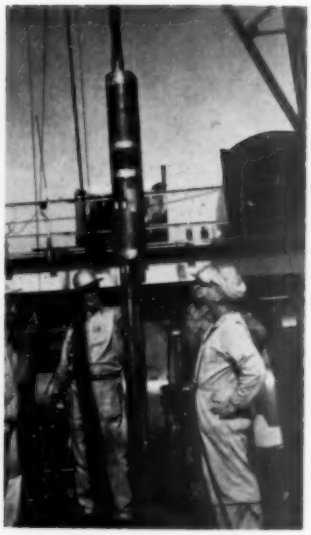
DUAL PACKER for historic well is examined by roughnecks on CATC's offshore platform in the Gulf of Mexico.



QUADRUPLE PACKER is checked by Brown Oil and CATC officials.

FOUR-STRING PACKER is lowered into hole under watchful eyes.

compact, and stronger, besides saving metal.

The tubing head spool is designed to receive, lock down, and seal four segmented tubing hangers.

When the drilling controls were removed and the tree installed, each of the locked down, sealed hangers had a 30,000-psi. rate Cameron back pressure valve installed in the hanger annulus. These were removed after the complete tree was installed and tested.

Because of the integral design of the tree, cross trees are eliminated. The tree is an API Series 1500, with a 10-in. tubing head flange.

Cameron introduced the first solid-block tree last January on a single-zone completion for V. F. Neuhaus, independent operator, near Mission, Tex. Since then, Cameron has made and delivered several of the first dual solid-block trees to the Williston Basin area and the first triple-string tree for a West Texas completion.

All downhole packers in the quadruple completion were supplied by Brown Oil Tool Co.

The packer design was already on the drawing board when the quadruple completion was planned.

It was the hydraulic-type set design which had been run in several triple completions for other operators. This design incorporates the use of hydraulic pressure to actuate a piston and cylinder-setting mechanism.

The packers are set individually by sealing off each respective tubing string with a Bakelite ball and applying pressure to the tubing. Differential pressure in excess of 4,000 psi. shears the pins, sets the slips, and collapses the sealing element.

A type CC (criss-cross thread) safety joint was recommended for use on the long tubing string, immediately below each packer. This procedure was adopted due to the possibility that the long string would not rotate through all packers.

The packers are released by rotating the long string. The design of this equipment eases running of all connecting strings below the quadruple packer with the long tubing string.

Special unions were incorporated on the bottom of the quadruple and triple packers to tie the second and third connecting strings into the packers.

The actual running operation was speeded considerably by spacing out of the packers and painting of the tubing in a color code before shipment to the rig.

This procedure, a CATC official says, is a very necessary step in such completion to avoid excessive rig time and confusion.

In the completion operation, the well was plugged back to 9,798 ft. inside the 9⅝-in. casing.

Since mud has a tendency to set up behind packers when it is exposed to high bottomhole temperatures, it was decided to displace the mud system with a completion fluid that would not set up.

All of the completion zones were new sands, so exact bottomhole pressure was unknown. A drillstem test was run and it was found that bottomhole static pressure was 5,755 psi.

CATC engineers determined that a 12.2-lb. per gal. completion fluid—fresh water weighted with sodium nitrate and calcium chloride—would be adequate.

To insure the primary cement job, and to prevent water channeling from the numerous water-bearing sands scattered throughout the over-all productive interval, each producing zone was block-squeezed, beginning with the bottom zone.

A 2-ft. section was perforated in the vicinity of each pay, and a block squeeze performed with 200 sacks of slo-set cement. The cement was drilled out and a dry test taken on each set of squeeze perforations, with the exception of the lower set, which was left plugged. The mud system then was displaced with the fresh water.

Halliburton Oil Well Cementing Co. handled the cementing operation.

Because of sanding difficulties in the field, only a 5 ft. section of each pay was perforated.

Each zone also was squeezed with a sand-consolidation plastic. It was felt this would partially eliminate the possibility of any early workover for this well.

The rather involved setting of the packers and four strings of tubing was managed without too much difficulty.

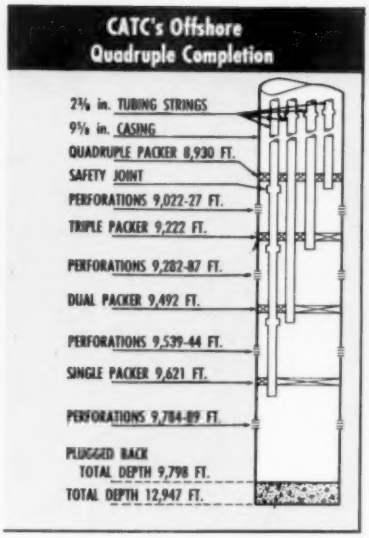
All packers were set on the number one, or long, string.

The single and dual packers were run in the hole to the point where the triple packer was to be installed.

The long string was hung in dual tubing slips, and the second string connecting tubing was run and stabbed into the dual packer.

The triple packer was then made up, on the long string, and the number two string was tied to the packer with a union.

This equipment was then lowered



SCHEMATIC drawing shows how packers, tubing, were set.

TUBING—35,000 ft. of it—used in completing the quadruple well lies ready for use on the rig floor.

to the point where the quadruple packer was to be installed.

The number one string was again hung in the dual slips, and the number two and three connecting strings were run and placed in their proper ports in the triple packer.

The quadruple packer was then made up and the number two and three connecting strings unioned to the packer.

The equipment was run into the hole to the predetermined depth on the number one string and landed in the tubing head.

Some difficulty was encountered in stabbing the stinger on the second string into the proper port in the quadruple packer, even though the second-string port was larger than the third- and fourth-string ports.

After failing to place the stinger in the quadruple packer, the crews pulled the number two string. To avoid idle rig time while waiting on a new stinger, the third and fourth strings were run to 6,500 ft. and hung at that level. The new stinger was then installed on the second string and it was run.

Because of excessive drag in the directional hole, 2 ft. had to be added to the original pipe measurements in order to get enough weight to force the stinger into the packer.

The third string was run and stabbed into the quadruple packer without difficulty. But this string also had to be overspaced to get more weight.

Attempts to place the fourth string were unsuccessful. It was decided to pick up the blowout preventers and add a 2-ft. section to the first string to take the suspected bow out of the second and third strings. After the 2-ft. section was added to the first string, the fourth string was stabbed without difficulty.

The Christmas tree was then installed and reverse circulation established through all four tubing strings to make sure they were clear of obstructions.

The packers were then set in reverse numerical order. A 1⅝-in. Bakelite ball was pumped down the number four string to the seating point.

The setting pressure was built up to 5,000 psi. and the casing was pressured up to 1,200 psi. to test the packer.

The setting ball was reversed out of the number four tubing string by pumping down the number three tubing string. The number three and number two packers were set in the same manner.

The number three packer was tested by placing 1,000 psi. pressure on the number four tubing string, and the number two packer was tested by placing 1,000 psi. pressure on the number three tubing string.

The number one packer was set by pumping a 1¾-in. ball down the number one tubing string. This packer was tested with 1,000 psi. by pumping down the number two string. The ball was flowed out of the number one string when the well was brought in.

An engineer notes that the ability to circulate selectively around the packers in the unset position proved to be a major gain in an installation of this type.

The wells were then swabbed in and tested.

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Oklahoma Test Keeps Breaking Records

A Caddo County (Okla.) wildcat is continuing to shatter casing records on its way to a projected depth of 24,000 ft.

The No. 1 Anadarko Basin, section 4-9n-12w, is being drilled to test the Bromide (Ordovician) sand, expected to be found at around 24,000 ft. The deep test is located on the Ft. Cobb anticline in the Anadarko Basin.

Operator of the test is Howell & Howell of Dallas. Tekoil Corp., Gulf Oil Corp., and Kenneth A. Ellison and associates are working-interest partners. The test was spudded on Nov. 10, 1957.

The casing program was planned from the bottom up, so the test wouldn't "run out of hole," an oversight that sometimes prevents deep tests from reaching their objectives.

Newest record is the 10,123 ft. of 9⅝-in. liner just cemented from 7,324 ft. to 17,447 ft.

The liner was set with 2,000 sacks of cement in a 12-in. hole in 28½ hours. The liner is 42.7-lb. per ft. N80 casing. No reaming was required.

This liner is expected to speed drilling, since the mud has been gas-cut from Morrow and Springer (Pennsylvanian) sands. Lower Morrow, where an attempted blowout occurred, was found at 15,155 ft. and Springer at 15,725 ft.

The Chester (Mississippian) was found at 17,000 ft. At the 17,683-ft. depth last week, the test was still in the Mississippian zone.

Operators may run 7-in. casing from the surface down to (and maybe into) the upper Bromide.

Plans call for the 7-in. string to be used either for production or as an intermediate string, depending on how far into the zone the 8⅜-in. hole is carried, and the type of production, if any.

Records grabbed by the wildcat early in the program include a 17½-in. hole drilled to 7,903 ft. and a 7,898-ft. string of 13⅜-in. casing. Cementing this string required 6,100 sacks of cement and took 13½ hours.

The 13⅜-in. casing is a specially made type, heavier than the usual 72-lb. API standard. It runs 85 lb. to the foot and has a wall thickness of .608-in. It was made by Youngstown Sheet & Tube Co.

The operator has been using a water-base mud.

The mud program has called for gel, caustic, and quebracho.

The water-base mud has from 10% to 12% oil added below 7,000 ft., to keep the formation face clean. Just before the 9⅝-in. liner was set, mud weight was 12.4 lb. per gal.

A total of 158 bits has been used in the drilling, so far.

Drill pipe required consists of 27 joints of 7¾-in. (3¼-in. ID) drill collars; some 8,000 ft. of 5½-in., 24.7-lb drill pipe with 7-in. OD, hard-faced tool joints; some 6,000 ft. of 5-in., 19.5-lb. drill pipe; and 16,000 ft. of 4½-in., 16.6-lb drill pipe

The size, power, and load requirements for the record-breaking rig are massive.

The reinforced Lee C. Moore mast is 142-ft. high and has a hook-load capacity of 800,000 lb. The foundation—40 x 90 x 2 ft.—took 370 cubic yards of concrete and 50,000 lb. of steel rod reinforcing.

Rack areas in the mast and substructure are strengthened to hold a maximum of 25,000 ft. of drill pipe and collars.

Power for the Continental-Emsco drawworks and two 18-in. Gardner-Denver mud pumps comes from three 867-hp. V-12 Waukesha gas engines with diesel engine pistons, using propane as fuel. These are connected to a high-speed section power-end compound with direct drive to drawworks and a rear-mounted 1,000-hp. double mud pump drive. Rated input for the drawworks is 1,800 hp.

The Continental-Emsco traveling block has a 500-ton capacity with six 50-in. sheaves. The swivel has a 400-ton dead load capacity with a 200-ton maximum rating at 100 rpm. Rated capacity of the Byron-Jackson hook is 500 tons.

The three dog houses for the crew are stacked on top of each other at the south end of the rig.

The pumps and substructure, as well as the engines, are enclosed with sectional steel. This, plus a 12-ft. wall around the rig floor, provides protection for the workers during operation in the winter.

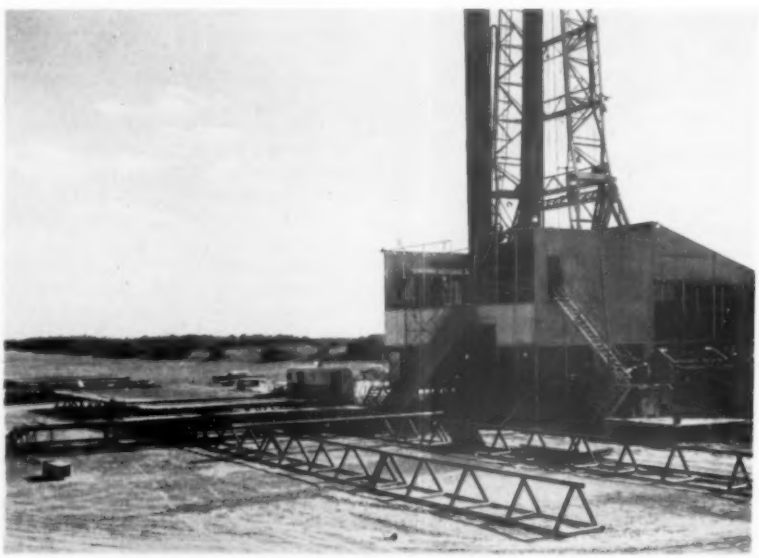
Cost of the test is estimated at about $2-million for the 18 months expected to reach target depth.

The test, however, is running high in comparison with the Superior Oil Co. No. 1 Weller—that formerly held the state depth record of 17,823—about seven mi. southeast.

Some observers feel that since the No. 1 Anadarko is running high, the test will bottom out at around 22,000 ft.

So far, pay shows have been limited to gas. Gas in the Morrow section of the Pennsylvanian caused mud to be unloaded from the hole at 15,412 ft. Best gas show in the Morrow, however, was in a sand at 15,155-335 ft. The Springer sand also showed gas at the 16,000-ft. level.

The operator feels that if any production is found in the Bromide, it probably will be gas-distillate. This same zone paid off in the Knox structure, 55 mi. to the southeast in neighboring Grady County.



PIPE RACKS hold some of the casing set at record depths at the Howell & Howell No. 1 Anadarko Basin, Caddo County, Okla., which is scheduled to go to 24,000 ft.

they took two!

Left to right: Hugh Liedtke, treasurer, Wayne Dean, vice-president, George Bush, President, of Zapata Offshore Company, Houston, Texas.

ZAPATA OFFSHORE CO.

. . . twice selected LeTourneau Platforms . . .
praises two-year payoff performances

The SCORPION on location

The VINEGARROON under tow

After two years of successful operation with LeTourneau drilling platforms, President George Bush reports:

"We at Zapata are very proud of the performance of our two LeTourneau platforms. Both the Scorpion and the Vinegarroon have rendered exceptionally fine service to the offshore oil industry and we feel they will continue to do so for some time to come."

The Scorpion has demonstrated its mobility by completing a move from one location to another in less than eight hours—including a two hour tow.

The seaworthiness and ease of handling of the Scorpion were demonstrated recently when a single tug towed it from Galveston to Cay Sal Bank, Bahama Islands,—a distance of over 1000 miles.

The Vinegarroon, too, has proved itself under adverse conditions. In June, 1957, it withstood the full force of the destructive hurricane Audrey. Although the anemometer of the platform registered winds in excess of 100 mph before it was broken, the Vinegarroon was the first mobile offshore platform in the area to resume full scale operations.

LeTourneau platforms are custom engineered and built for a wide range of operating conditions. If you have a situation requiring a new platform we'd welcome the opportunity to discuss it with you. Call us for additional information, or write for descriptive literature. No obligation, of course.

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Turbodrill Scores in Test

Dresser Industries' new turbodrill is compiling an impressive drilling-speed record in the Herscher Dome area, Kankakee County, Ill.

Seven gas-injection wells have been drilled with the Dresser turbodrill, and an eighth is now nearing completion.

The work is being done by Moran Bros. Drilling Co. for Natural Gas Storage Co. of Illinois. Purpose: to increase capacity of the gas-storage reservoir. It is said to be the first time that turbodrilling has been used on an underground storage project.

The project has furnished the most comprehensive test of the turbodrill since the original Russian tool was brought into this country 1½ years ago by J. B. O'Connor, president of Dresser Industries, Inc.

The project also marks the first time the turbodrill has been used in an area where the geology, depths, operating conditions, and the like, have remained the same. This repetitive use under static conditions also has permitted, for the first time, a comparison to be made of the increases in efficiency of the drill with each succeeding test.

In drilling so far, the Dresser turbodrill has reduced total well completion time from about 30 days to only 10 days. The turbodrill, however, is used only for the top 1,440 ft., or so.

Total time to drill and set two strings of casing was cut from an average 16 days with rotary to only 3 days with turbodrill in this upper section.

Actual drilling time was reduced from 111 hours with rotary to only 35 hours with turbodrill.

In addition, drillpipe twistoffs, and abnormal rig repairs have been eliminated with use of the turbodrill.

As a result, Moran Bros. is using only one rig—instead of two or three—to carry out the expansion program, which will be completed earlier than anticipated.

The turbodrill was used because the drilling program requires large-diameter holes at shallow depth through very hard, abrasive, and broken formations.

Moran Bros. had found it impossible—in rotary drilling—to apply sufficient weight to the 17½-in. and 12¼-in. bits in order to prevent severe bit bouncing in the shallower formations.

The bit bouncing produced vibrations which cut penetration rate, dulled bits, caused drillpipe twistoffs, and damaged the rig.

The contractor had drilled about 25 wells at Herscher—by rotary—before approaching Dresser to work out a turbodrilling program.

The holes are being drilled to the Mt. Simon sandstone, at about 2,440-600 ft. An 8¾-in. hole, with 7-in. casing, is required in the lower 1,000 to 1,200 ft.

It was decided to use the turbodrill for the 17½-in. and 12¼-in. hole in the upper formations because of its smoother operation and ability to penetrate with less bit weight than the rotary.

In the 8¾-in. hole below 1,440 ft. it is possible to apply more weight to the bit, making rotary operation practicable.

Dresser's 80-stage, 10¼-in. OD turbodrill is being used in the Herscher Dome project. This turbodrill is a Dresser-improved version of the turbodrill originally brought into this country.

Ott Hammer, operating vice-president, says that "about the only thing remaining from the original turbodrill brought here from abroad is the out-

"A melting pot of geophysical experience."

Geophysical exploration techniques which are effective in the Middle East may also work to your advantage in West Texas, or in your other problem areas.

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GSI... continuing leadership through research and growth

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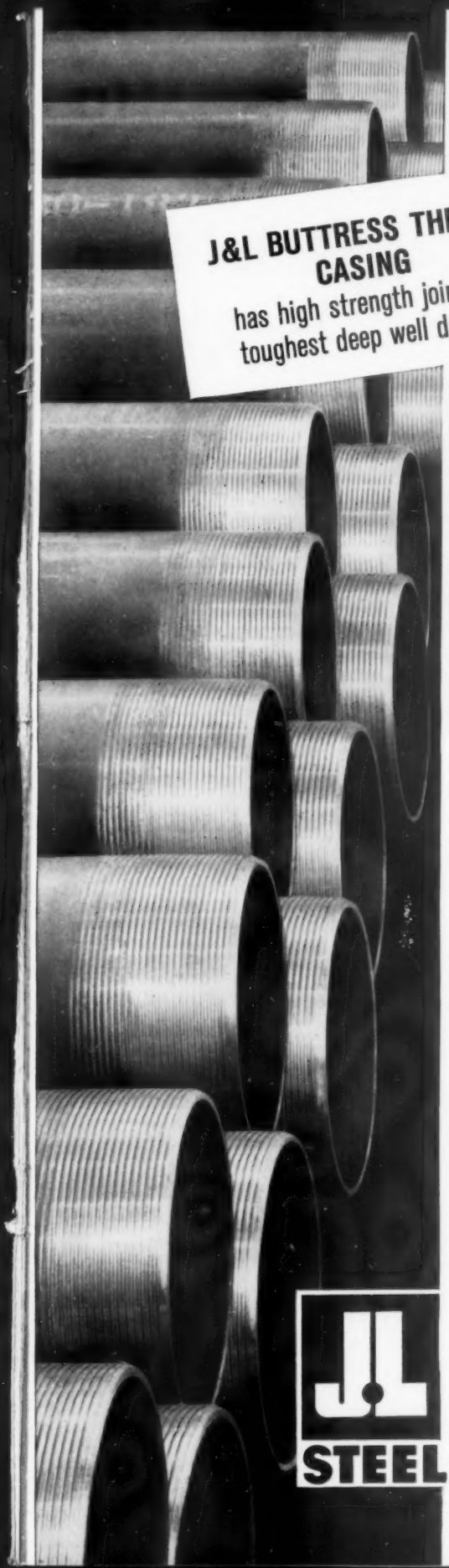

BUTTRESS THREAD CASING

meets crucial needs at lower depths

Without a hitch, 4,416 feet of J&L Buttress Thread casing were set recently near the top end of a 14,428′ string at the Mitchell #1 well in the Carter-Knox field, Grady County, Okla.

The setting of 357 lengths of casing was accomplished in less than 24 hours.

High joint strength of Buttress Thread casing is attained by combined effect of completely engaged runout threads and the three-degree flank angle of the thread.

Easy stabbing, rapid spinning and fewer power strokes to pull the coupling up to power-tight position are provided by the unique thread design.

Get complete information on this new J&L casing for your most severe drilling operations. Write to the Jones & Laughlin Steel Corporation, 3 Gateway Center, Pittsburgh 30, Pennsylvania.

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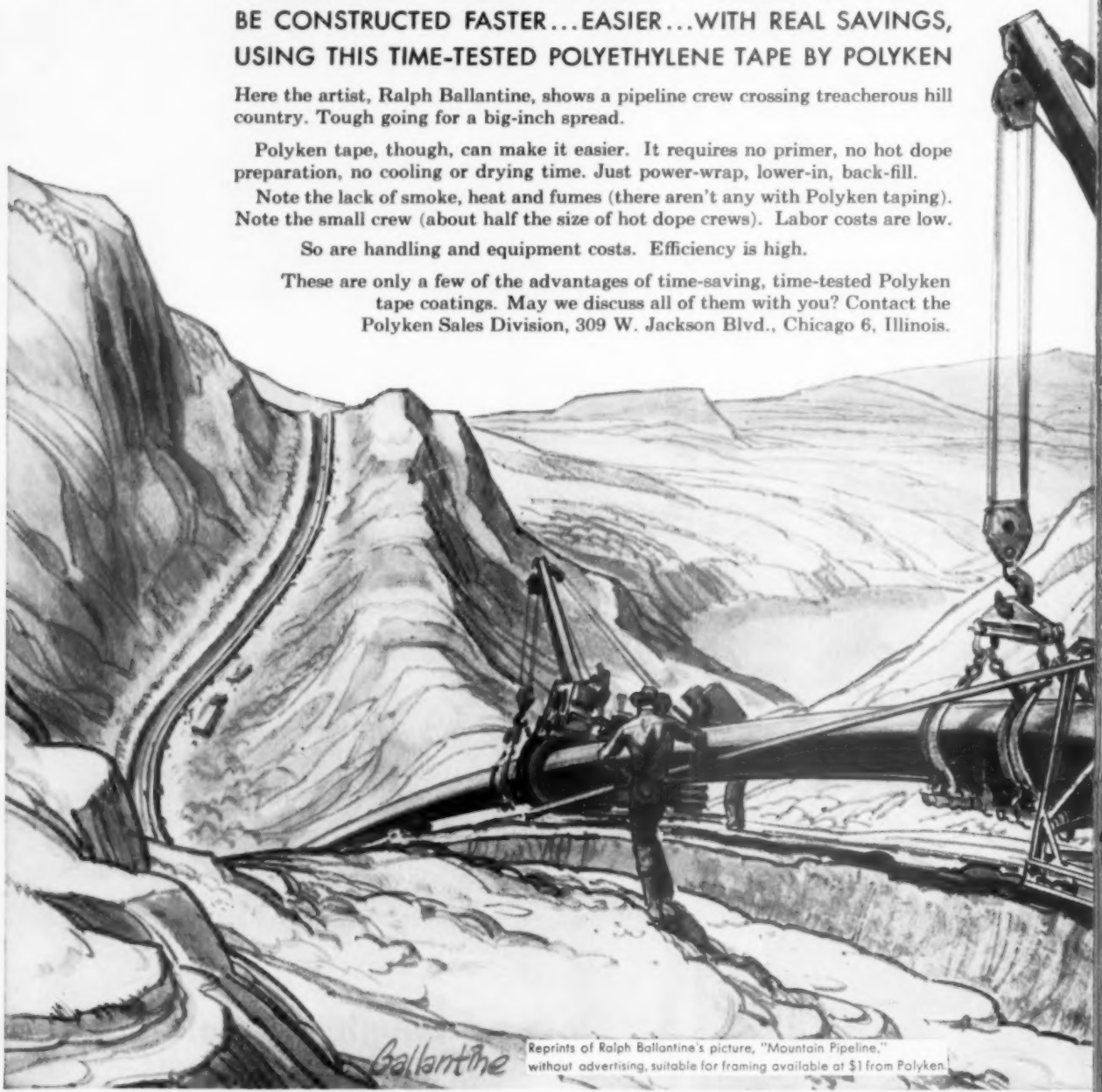
Here the artist, Ralph Ballantine, shows a pipeline crew crossing treacherous hill country. Tough going for a big-inch spread.

Polyken tape, though, can make it easier. It requires no primer, no hot dope preparation, no cooling or drying time. Just power-wrap, lower-in, back-fill.

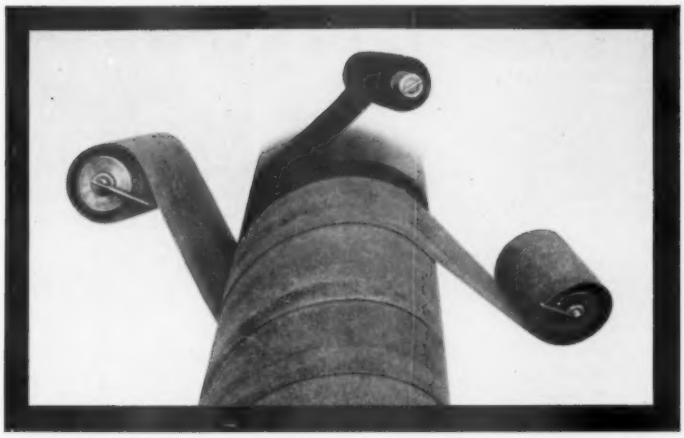
Note the lack of smoke, heat and fumes (there aren't any with Polyken taping). Note the small crew (about half the size of hot dope crews). Labor costs are low.

So are handling and equipment costs. Efficiency is high.

These are only a few of the advantages of time-saving, time-tested Polyken tape coatings. May we discuss all of them with you? Contact the Polyken Sales Division, 309 W. Jackson Blvd., Chicago 6, Illinois.



Reprints of Ralph Ballantine's picture, "Mountain Pipeline," without advertising, suitable for framing available at $1 from Polyken.



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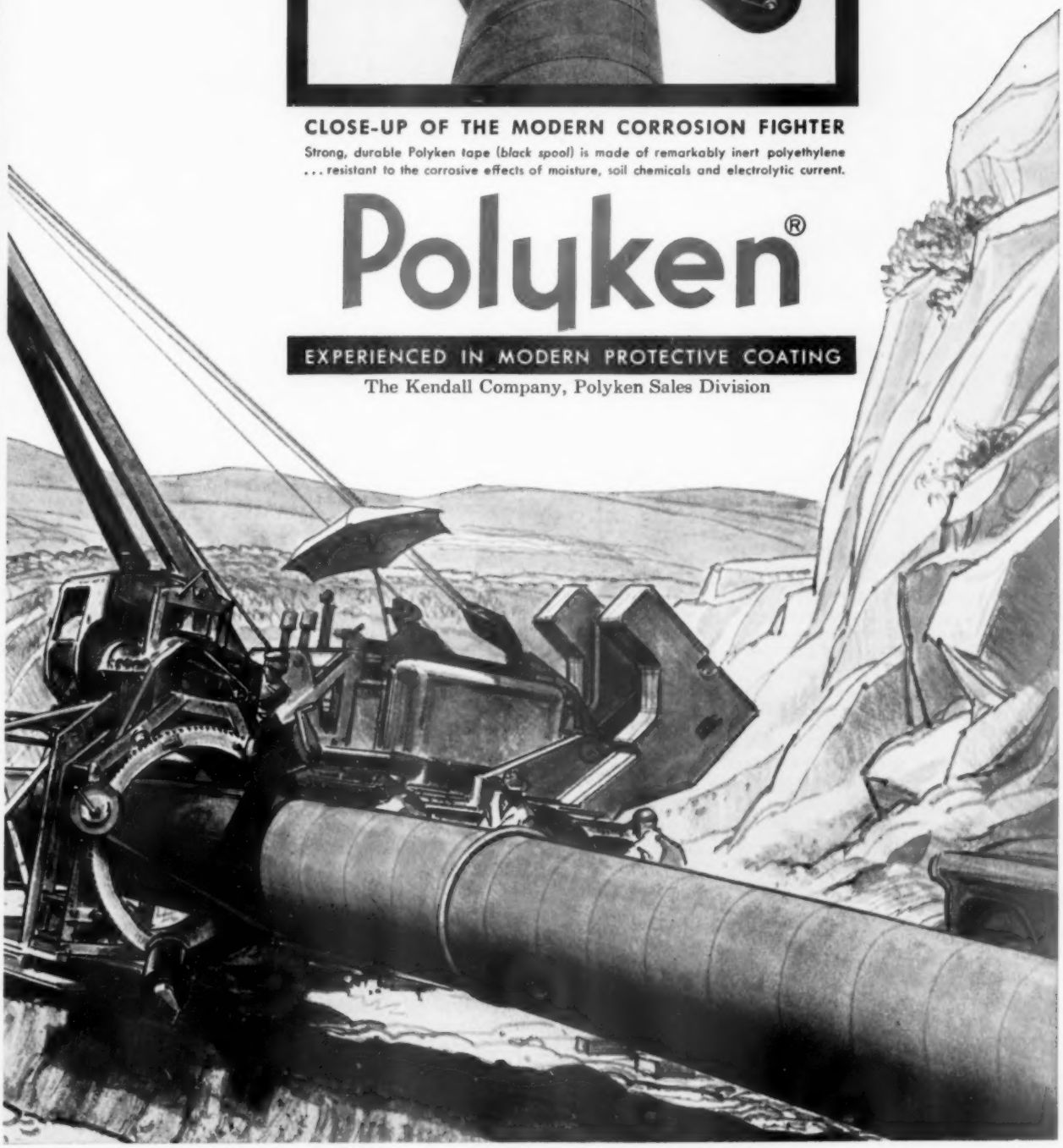


side shell, and that is only a pipe."

He adds that the current Dresser turbodrill has a newly designed thrust bearing, which gives longer life and improves maintenance. There also is a new shaft and power pack—all designed and built by Dresser.

On the Herscher job, a 96-ft. jackknife mast, a drawworks rated at 3,500 ft. with 4½-in. drillpipe, and a 300-hp. pump was used in the rotary drilling.

For the switch to turbodrill operation, an Ideco Mud-Master 600-hp. pump with electric drive was installed so that the drilling fluid—which drives the turbodrill—could be circulated at the necessary 800 gal. or so per minute.

Records show that turbodrill performance has improved with each hole drilled.

The first turbodrilled hole required 9½ days—and only 84 drilling hours—to reach the casing point at 1,432 ft. Time was lost in repairing the rig and by lost circulation at 600 ft., which required a rotary bit run.

By the time the sixth turbodrilled hole was completed, drilling time was cut to 3¾ days, and only 35 rotating hours.

By comparison, the first rotary-drilled hole required 18 days—and 115 drilling hours—to reach 1,432 ft., of which 12 days were spent in repairing the drilling rig or fishing for eight twistoffs, due to extreme vibrations caused by running the large bits with limited weight in the hard, broken formations.

Drilling performance in the 8¾-in. hole below 1,440 ft. also improved on the rig equipped for turbodrilling because the heavier mud pump permitted use of jet bits. This has reduced drilling time for this size hole from 19 days and 8 bits with the small pump and conventional bits to 6 days and 4 bits with the large pump and jet bits.

Straight holes are another advantage resulting from use of the turbodrill in the Herscher area.

Previously, holes drilled by rotary deviated seriously. Current holes drilled by turbodrill are held within 0.75 degree, or less, of vertical. Below the turbodrilled section, the 8¾-in. rotary hole deviates 1½ degrees to 3 degrees from vertical.

Bits still wear out faster when the turbodrill is used. But, says Hammer, this is more than offset by the big increase in penetration rate.

"In harder formations," Hammer says, "we've been getting a 65% bit life, on the average. But we'll drill the comparable footage in one-third the time."

What's New / IN EXPLORATION, DRILLING, PRODUCTION

One of the largest gas-explora- units in Wyoming history is being put together by El Paso Natural Gas Co.

The company's Bridger Hill Unit in Lincoln County will cover some 132,000 acres, in the "disturbed belt area" of southwestern Wyoming.

The unit is now being circulated and will be filed shortly with the U.S. Geological Survey. Participants will include Sun Oil Co., Union Pacific Railroad Co., and Walton-Kearns.

•

An oil and gas lease sale last week netted the Alberta government $4,353,245 for lands in the central part of the province.

Canada-Cities Service Petroleum was high bidder, paying $769,280 for two sections in Pembina field. Bids were rejected on five other parcels totaling 2,406 acres in Joffre and Pembina fields.

An earlier sale, however, of lands in the northeastern part of Alberta drew response on only one parcel out of ten totaling 585,450 acres.

As the only bidder, Union Oil Co. of California took 17,920 acres for about $5,000.

•

Graridge Corp. has been authorized to install automatic custody transfer equipment on the North Caprock-Queen No. 1 Unit, Chaves and Lea Counties, N. Mex.

Production from wells in the unit will be run into a common tank battery and measured during transfer by means of positive displacement meters. Approval was granted by the state oil conservation commission.

•

A waterflood program will be started immediately by Oceanic Oil Co. on a newly-acquired 276-acre section of Greybull field, Big Horn Basin, Wyo.

The property, bought for an undisclosed amount from Cascade Oil Co., has 12 wells producing a total of 160 b/d of 36-gravity oil. It's hoped that the waterflood will boost output to 300 b/d in the near future.

•

Nonproducing leasehold interests of about 150,000 acres have been bought by Drilling & Exploration Co., of Dallas, and Mack Oil Co., of Duncan, Okla.

The interests, spreading over 33 counties in central and western Kansas and in Hayes County, Neb., were acquired from Lion Oil Co., a division of Monsanto Chemical Co. The price was not disclosed.

Drilling & Exploration also has bought the interests of Avila Oil Co. in Oklahoma's Centrahoma field, Coal County; North Summer field, Noble County, and gas property in Collingsworth County, Tex. The price paid was $270,000.

•

Illinois production held steady during the first half this year despite a 14½% decline in drilling activity.

The steadiness in production is due largely to secondary recovery, according to the July report of the Illinois Geological Survey.

A total of 202 tests were drilled in June, of which 75 were completed as oil wells and one as a gas well.

•

A lease sale of Oklahoma school lands has realized $126,881 for the 3,535 acres sold. Of the 40 tracts listed for sale, 37 drew bids.

High bids for the sale were $123 and $110 per acre from Apache Oil Co. and Skelly Oil Co., respectively, for 160 acres each in Ellis County.

•

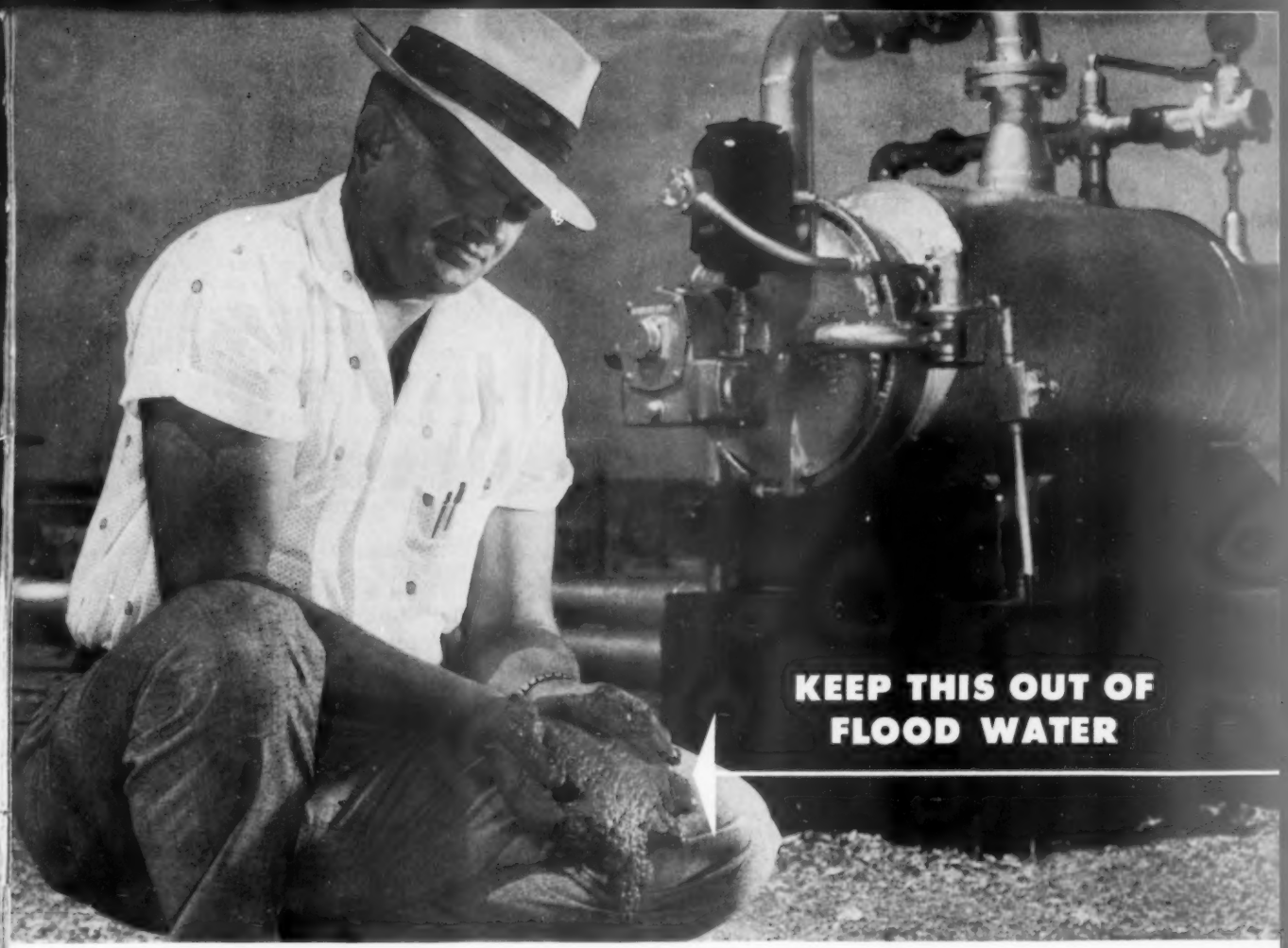
Operators of four North Dakota fields have asked for permanent 80-acre spacing. The fields are Columbus, Burke County; Rocky Ridge, Billings County; South Westhope, Bottineau County; and Noonan, Divide County.

Temporary 160-acre spacing has been asked for Foothills and South Rival fields in Burke County and Sand Creek field, McKenzie County. These are relatively newly discovered pools.

•

The Spread Creek Unit, Teton County, Wyo. has been approved by the U.S. Geological Survey. British-American Producing Co. is operator of the 28,600-acre block.

British-American plans a 10,500-ft. test of the Tensleep (Pennsylvanian).



Self-cleaning JET STRAINERS put clean water in the formation...more oil in the tank.

Clean water is a must for successful water-flooding. Injection water containing sand and other solids can form a permanent block in the formation. Workovers to remove the solids from the well bore do not always restore free circulation since a portion of the solids may enter and penetrate the formation. Additional horsepower is then required to force the flood water through the obstruction. It all adds up to a more expensive, less effective water-flood operation.

The T-C Jet Strainer has proved most successful in removing solids from flood water. Using a bare 400-mesh screen, it removes solids down to 31-micron particle size. With diotomite filteraid, it removes sub-micron solids . . . even algae and bacteria.

But that's only part of the story. T-C Jet Strainers can be cleaned and returned to service in less than five minutes. They never require backwashing. Push a button and revolving jets go into action, scouring the screen and flushing the solids out of the strainer. A pressure-differential gauge notifies the operator when the strainer needs cleaning. The cleaning operation may be made completely automatic, if desired, with electronic controls of the operator's choice.

Gallon for gallon of strainer capacity, T-C Jet Strainers cost far less than ordinary sand filters, yet they do an infinitely better job.

Got a water-flood in process . . . or planned? Let us send you full particulars on the T-C Jet Strainer. Write or wire:

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With investment and labor costs continuing to increase, economy of operation is of paramount importance in producing wells with decreasing oil-water ratios.

Reda-Submergible Pumps are an economical means of producing wells with high fluid volume. Over 80 million barrels of oil have been produced to date from wells previously unprofitable to operate. Not only has production increased, but pumping with Reda extended the ultimate economic life of thousands of wells previously produced at low rates of fluid withdrawal.

Sizes are available to 300 h.p.; capacities from 20 bbls. to 25,000 bbls. per day; depths from 200-feet to over 10,000-feet. Easier, less expensive installation, low operating costs, increased production, greater operating life, and efficient performance lower costs when pumping with Reda.

Write today for further information. Reda engineers will be pleased to furnish complete information.

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REDA PUMP COMPANY
BARTLESVILLE, OKLAHOMA

Previous drilling on the block is represented by two wells on the southwest side, neither of which went below 7,600 ft.

•

The newly approved 26,800-acre Emigrant Springs Unit in Lincoln County, Wyo. is being operated by Belco Petroleum, New York. Interest holders include Continental Oil Co., The Texas Co., and Gulf Oil Corp.

•

Drilling Highlights

Wyoming—Mountain Fuel Supply Co. No. 2 Trail Creek Unit, section 10-13n-100w, Sweetwater County, was brought under control last week after blowing wild for 36 hours following a fracture job, which resulted in a gas flow estimated at more than 50-million cu. ft. daily. The discovery, 6 mi. north of Canyon Creek field, was originally rated at 6,180,000 cu. ft. of gas daily from the Mesaverde. The fracture was carried out with 27,000 gal. of diesel, and 20,250 lb. of sand, followed by 400 rubber-coated 1-in. nylon balls.

Oklahoma—Cities Service Oil Co. No. 1 Weidenmaier, section 16-6n-12w, Caddo County wildcat 4 mi. northwest of Apache field, flowed an estimated 20 bbl. of 31-gravity oil on 3-hour drillstem test of the Viola lime at 7,001-91 ft. Gas surfaced in 12 minutes at the rate of 1-million cu. ft. daily. The prospect also had recovered 315 ft. of oil from the Chester at 3,526-600 ft. and blew out in the Upper Viola at 6,941 ft., spraying oil at that depth.

In Murray County, Continental Oil Co. No. 1 Greer, section 34-1n-2e, 2 mi. northwest of East Davis pool, flowed 191 b/d of 21.6-gravity oil through 14/64-in. choke and 1 ft. of perforations in the Third Bromide at 3,939 ft. The prospect also had flowed 750,000 cu. ft. of gas daily through perforations in the McLish at 4,090-100 ft. and 2.5-million cu. ft. of gas daily through 1 ft. of perforations in the Basal McLish at 4,172 ft.

Mississippi—Arkansas Fuel Oil Corp. No. 1 Lavon Womack, section 35-1n-6e, Smith County, was completed for 250 b/d of 43-gravity oil through 12/64-in. choke and perforations at 13,045-54 ft. in the Bailey zone of the Sligo. The discovery is 15 mi. northeast of Gwinville field.

Kansas—Petroleum, Inc. No. 1 Jacobs, section 28-32s-14w, Barber County, was completed for 75 b/d through perforations at 4,448-88 ft. in the Marmaton. The discovery, in the Elsea gas field, gives the county its first oil production.

In Stafford County, Sunray Mid-Continent Oil Co. No. 1 Cline, section 25-24s-13w, 2 mi. west of St. John field, recovered oil from two Lansing-Kansas City zones on drillstem tests. On the first test at 3,587-99 ft., 960 ft. of oil and 180 ft. of muddy oil were recovered. On the second test, at 3,618-31 ft., 385 ft. of oil were recovered.

Alaska—Standard Oil Co. of California is abandoning No. 1 Deep Creek Unit, section 15-2s-13w, near Ninilchik, Kenai Peninsula, at 14,221 ft.—deepest test ever drilled in Alaska.

Arkansas—Don D. Montgomery No. A-1 Featherstone, section 27-16s-24w, Kress City field, Lafayette County, flowed 140 b/d through perforations at 5,379-86 ft., a new shallow pay for the field. Previous production has been from the 8,300-ft. level.

West Central Texas—J. C. Hunter Jr. No. 1 G. W. Murfee, J. Boston survey 276, Jones County, flowed 377 b/d of 41-gravity oil through 17/64-in. choke and open hole at 4,650-78 ft. The discovery opens Strawn reef production in West Noodle Canyon sand and Noodle Creek lime pool.

In Stonewall County, Fletcher Oil & Gas Drilling Corp. No. 1 Garrett Hecht, section 119, block D, H&TC survey, flowed 600 b/d of 40-gravity oil through 24/64-in. choke and perforations at 6,031-55 ft. and 6,067-72 ft. The find is 1 mi. southeast of Schick Bend conglomerate field.

New Mexico—The Texas Co. No. 1 Perry-Federal, section 29-15s-30e, Chaves County, recovered 200 ft. of heavily gas-cut mud and 20 ft. of slightly oil-cut mud on 2-hour test of the Pennsylvanian at 8,570-90 ft. Operator was preparing to core 50 ft. and take another test at the prospect, 3 mi. southwest of Cedar Point pool.

Considerable interest is being shown in Humble Oil & Refining Co. No. 1-BA State, now drilling near Big Hatchet Mountain in Hidalgo County in the southwest corner of the state. The test, scheduled to 8,000 ft., is several hundred miles from any production.

North Dakota—Pioneer Oil Drilling No. 1 Ormiston, section 25-162n-90w, Burke County, recovered 900 ft. of oil and 180 ft. of oil-cut mud on 3-hour drillstem test of the Nesson at 5,947-62 ft. The prospect is 5½ mi. southeast of Woburn pool.

DU PONT *Petroleum Chemicals* NEWS

Number 90 in a Series of Bulletins for the Petroleum Industry

AUGUST 1958

Demand for continuous on-stream blending prompts this Du Pont service

"Dacron"*, made in part from oil, serves the well dressed executive

Suits made with Du Pont "Dacron" polyester fiber offer advantages to the businessman. Those to whom neat appearance and comfort are important are broadening the world market for "Dacron"... and so for petroleum.

The prime quality of "Dacron" (often combined in fabrics with other fibers) is neat appearance. Such fabrics have remarkable *crease-retention* and *resistance to wrinkles.*

Suits made with "Dacron" are easy to care for. All are dry cleanable and many come in wash and wear constructions. Winter weight fabrics are warm, and those for summer are extremely cool.

Chemical companies

Du Pont, manufacturer of "Dacron" and nylon, also an oil derivative, is growing as a consumer of petroleum. So are other chemical companies which make synthetic fibers. As demand for them increases, this market for petroleum will expand.

**"Dacron" is Du Pont's trademark for its polyester fiber.*

It used to be a simple matter to blend a little casinghead or cracked gasoline with the straight run from the stills. But today . . .

Every refiner faces the problem of blending from 4 to 10 components into his gasoline from an even greater number of production sources—plus an increasing array of dyes, inhibitors and other additives.

To help you meet this heavy—and rapidly growing heavier—blending load, the Du Pont Petroleum Chemicals Division now offers an impartial consultation service on continuous on-stream blending.

B. G. CRANE (in dark suit) inspects console used in automatically taking tank farm temperatures and gauges. These figures are fed to a computer which automatically converts them to volumes corrected to 60° F. The information is automatically printed three times a day on inventory report forms. Instantaneous gauging information on any tank can be obtained by the operator at the throw of a selector switch.

Trend to automation

The petroleum industry has always been a leader in the trend to automatic processing operations. But one large area left for improvement in product handling is the tank farm and light oil dispatching, blending and loading operations.

ADVERTISEMENT—Prepared for the Petroleum Chemicals Division of E. I. du Pont de Nemours & Company (Inc.)

OVER

DUPONT *Petroleum Chemicals* NEWS

CONTINUED *Continuous Blending*

Now, the adoption of continuous blending of motor fuel is one of the last steps to achieve straight-through handling of all refinery products and elimination of the need for intermediate storage.

What you gain

In comparison with *batch* and *partial* blending methods, the *continuous on-stream* method offers many advantages. Refiners who are now using the automatic continuous method report that they are successfully realizing all, or most, of the following benefits:

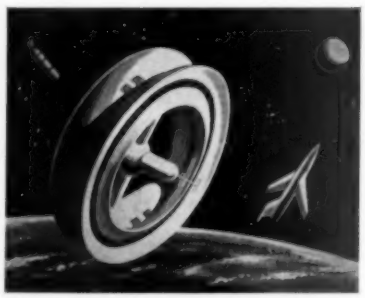
1. Increased tank utilization
2. Elimination of reblending
3. Elimination of quality giveaway
4. Reduced loss of light ends
5. Blending closer to ultimate specifications
6. Flexibility in maintaining inventory in base stocks
7. Lower power costs
8. Reduced inventory of TEL and other additives in finished gasoline
9. Simplification of butane shrinkage factor
10. Increased safety

RATE CONTROL VALVES in the automatic gasoline-blending manifold and stock solution tanks used for the continuous injection of additives.

To help you

If you are considering setting up either a partially or completely automatic continuous blending procedure at your refinery, we believe it will pay you to consult with Mr. B. Gardner Crane, our Petroleum Chemicals Division authority on continuous blending methods. He has had wide experience in working with a number of refiners on all aspects of continuous blending problems. You'll find his recommendations completely objective and impartial. Your local Petroleum Chemicals Division representative will be glad to make arrangements.

Space platform built with petroleum-based products predicted for future



A DRAMATIC EXAMPLE of exciting future uses of petroleum-based products developed by the chemical industry is this proposed space platform.

Rocket expert Dr. Wernher von Braun predicts that 1980 will see the first space platform built to accommodate scientific research installations.

Oil in space

Such a platform would probably be built of the same durable, economical petroleum products that are revolutionizing modern housing. The structure would be prefabricated on the ground, of oil-derived materials of plastic or rubberized nylon. The parts would then be shipped in cargo rockets into their orbit, put together, and inflated with internal pressure.

Du Pont warehouses meet emergency additives needs of "caught-short" refiners

When fire broke out recently at a mid-continent refinery, an alert Du Pont representative rushed to the scene to offer whatever assistance he could. He found that the blaze had consumed the refinery's entire stock of additives.

He phoned a nearby Du Pont warehouse, and within a few hours a new supply of additives was on the way by train, arriving next morning.

In another instance, a refinery unexpectedly ran low on gasoline dye. A rush order was phoned to a Du Pont regional office at 1 p.m. The dye was shipped from a nearby Du Pont warehouse the same afternoon. In spite of a nine-inch snowfall which blanketed the route, the truck delivered the dye before the refinery's dwindling supply ran out.

These are only two of many examples of how our well stocked, conveniently located warehouses can help you solve an additives shortage. There are seven warehouses: at Carneys Point, New Jersey; East Chicago, Indiana; Kansas City, Missouri; La Porte, Texas; Billings, Montana; Mt. Vernon, Washington; and Los Angeles, California. Each maintains an ample supply of Du Pont additives, including Du Pont Metal Deactivator, antioxidants, dyes, fuel oil additives, and grease stabilizers.

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Pittsburgh 22—1 Gateway Center . . . ATlantic 1-2933
San Francisco 4—111 Sutter St. . . . . EXbrook 2-1934
Seattle 3—4003 Aurora Ave. . . . . MElrose 2-6977
Tulsa 1—1811 So. Baltimore Ave. . . . . LUther 5-5578
In Canada—Du Pont Company of Canada (1956) Limited, Petroleum Chemicals, 85 Eglinton Ave. East, **Toronto 12**—Ontario . . . . . HUdson 1-6461
In Other Countries—Organic Chemicals Department, Export Division, 7447 Nemours Bldg., Wilmington 98, Del., PRospect 4-2962.

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Du Pont Tetraethyl Lead and other Petroleum Additives

OVER

ADVERTISEMENT—Prepared for the Petroleum Chemicals Division of E. I. du Pont de Nemours & Company (Inc.)

A-7352

Printed in U. S. A.

Gordon Simpson: A Veteran of Battles

Gordon Simpson is no change in the usual line of hard-driving Independent Petroleum Assn. of America presidents. But he is unique in that he is the first top executive of the independents to be head of a firm with foreign operations.

Simpson, in his eight months as president, has made his role in the IPAA more than just a sideline job. In fact, he spends at least half of his time on IPAA business.

An example of how he places IPAA first is that as president of General American Oil Co. of Texas, it is customary for him to make a routine visit to Spain to keep General American's relationship with the Spanish government on a cordial basis concerning the company's operations there.

Two days before he was to leave recently, he cancelled his reservations, postponed the trip indefinitely, and flew back to Washington to work on the imports problem.

"The IPAA work is first on my program," says Simpson. "I can't leave until I have done my duty."

And his "duty" keeps him at a fast pace. Typical is the time he arrived in Dallas late one evening, transacted company business by telephone and was off to preside at a tax conference in Abilene.

"The work of the IPAA makes extraordinary demands, but the importance of the work justifies yielding to those demands," Simpson says.

In Simpson's mind the IPAA has a definite mission and it is his job to accomplish it.

This alone is a double-barreled job:

- Constant appearance before the numerous government and state agencies.
- Getting and maintaining cooperation between the 13,000 members of the IPAA.

For this, Simpson seems to be more than qualified. Associates and General American employees testify to his ability as a leader.

His associates say:

"He is a courtly, dignified man; friendly but formal . . . an apparent anachronism in a fast-moving, hard-hitting industry like the oil business. But he can hit hard and move fast when the occasion arises.

"In every big company there are factions and back-biting, but Judge Simpson is liked by everyone," says a company employee.

IPAA PRESIDENT Gordon Simpson, leader of 13,000 independent producers.

He is known for making the rounds of General American offices and speaking to each employee.

This ability to succeed with people has characterized Simpson's life.

His path upward began when he was graduated from the University of Texas with a law degree.

After practicing law four years, he served as a representative in the Texas Legislature four years, became a district judge and went on to a member of the State Supreme Court, when his name was submitted by friends.

He entered World War I as a lieutenant and served again in World War II, emerging as a lieutenant colonel. He now is a retired colonel and holder of the Bronze Star.

In 1948, he was chairman of the Department of Army commission to investigate the Malmedy and other war crime cases tried at Dachau, Germany.

He has a string of presidencies and chairmanships ranging from the Texas Bar Assn. to trustee of the Presbyterian Home and School for Children.

The curbstones of Simpson's approach to problems are a calm, deliberate analysis and reasonableness.

"Try never to be unreasonable," he says. "This usually begets an attitude on the part of the other fellow not to be unreasonable."

"Take the other man's viewpoint and try to understand it. You can usually come to an agreement."

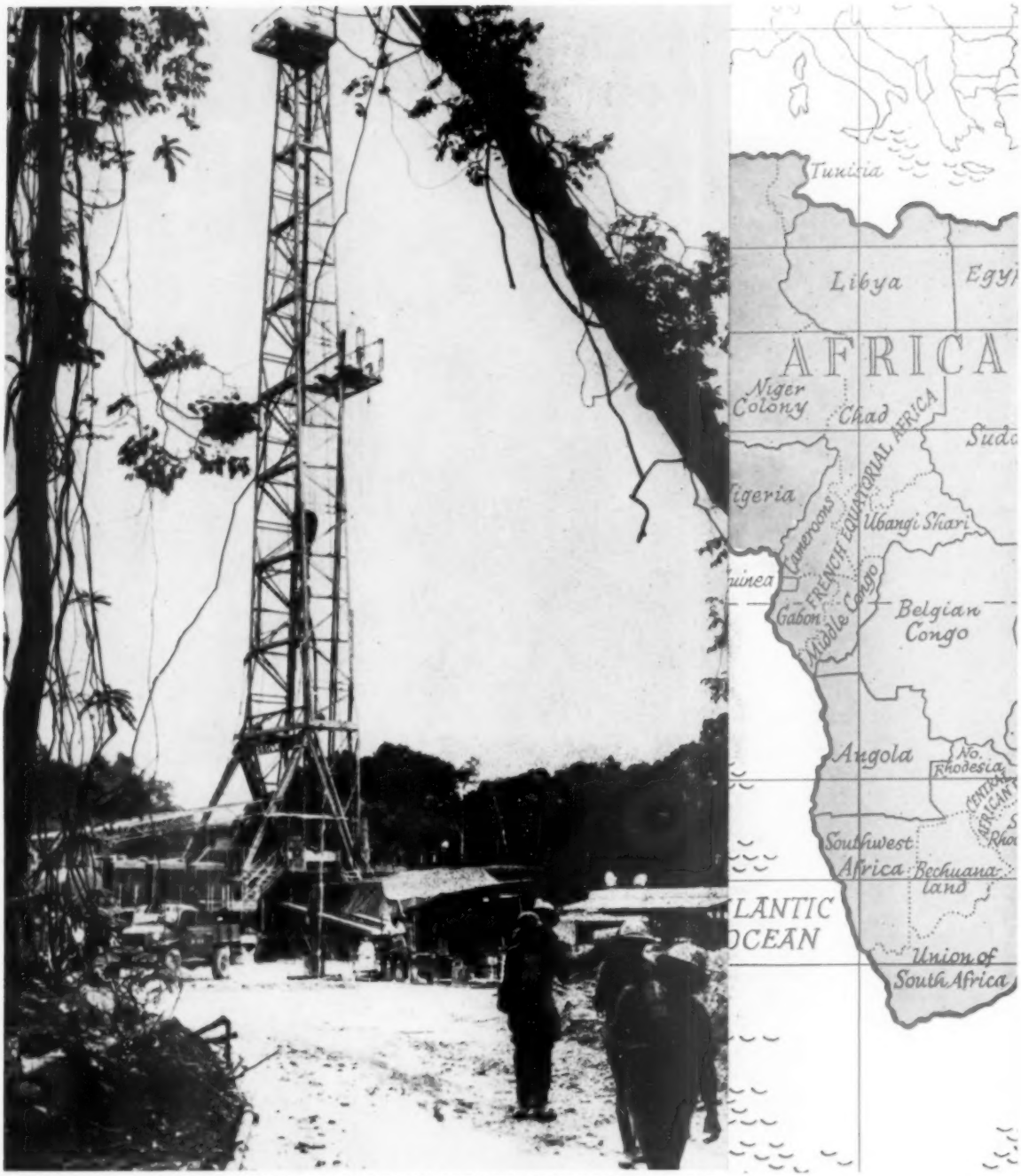
Simpson's associates say he never comes out with a flat statement of his viewpoint first. Instead, he hears the other fellow's side; then if he doesn't agree, he usually leads the other man to his way of thinking by means of subtle questions.

He stresses the need for getting "all the light on a problem you can from as many people as you can."

One of the suggestions Simpson has for easing some of the internal problems of the IPAA is that the association should name a president-elect each year.

He plans to make the suggestion to the IPAA committee that is reviewing the constitution and by-laws for its "serious consideration."

This would give the incoming president a year to prepare himself to assume the office and "would give better continuity and effectiveness."



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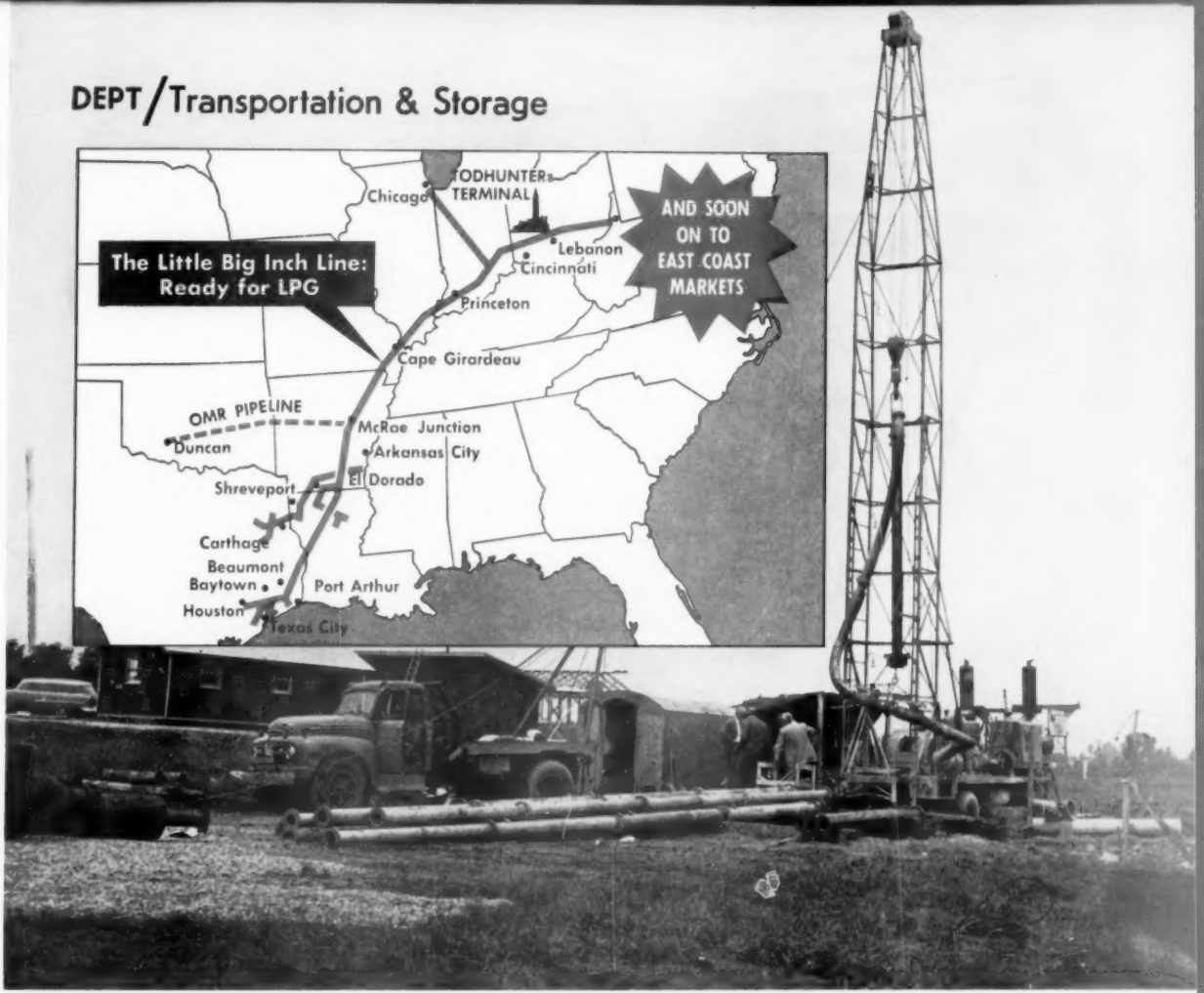


LPG BY LONG-DISTANCE PIPELINE is now offered by Texas Eastern Transmission Corp. Its Little Big Inch products system is moving LPG as far north as Todhunter, Ohio, where a storage cavern is being excavated. Soon the line will be extended as . . .

The LPG Transportation Fight Heats Up

It's no-holds-barred from here on in the battle among railroads, barges, and pipelines to transport the newest major petroleum product, liquefied petroleum gas from its production areas to its big, but far-away markets.

The battle lines between the would-be long-distance LPG movers are now clearly drawn along the Southwest-to-East Coast "supply trail." The impending fight along this route (and probably in other areas during the next few years) actually has two facets: one, the "traditional" long-distance LPG movers doing their best to fend off an oncoming invasion of new LPG-moving pipelines; and two, a scrap within the ranks of the pipeline interests for the LPG business.

Pipelines have been moving small quantities of LPG over relatively short distances for more than 25 years. But the product's rapid demand growth and bright market potential are now bringing in the pipelines in a big way.

Texas Eastern Transmission Corp., now the leading exponent of such long-distance LPG pipelining, made that much clear last week. Texas Eastern said it now intends to extend its LPG transmission facilities all the way to East Coast markets.

Texas Eastern's entry into the long-distance LPG transportation business is through its Little Big Inch system, recently reconverted to products transmission (PW—Jun.6'58,p13).

Texas Eastern plans to batch LPG with other products moving through the Little Inch system—which now extends from the Houston area 1,168 mi. to Moundsville, W. Va. A spur extends from Seymour, Ind., to the Chicago area.

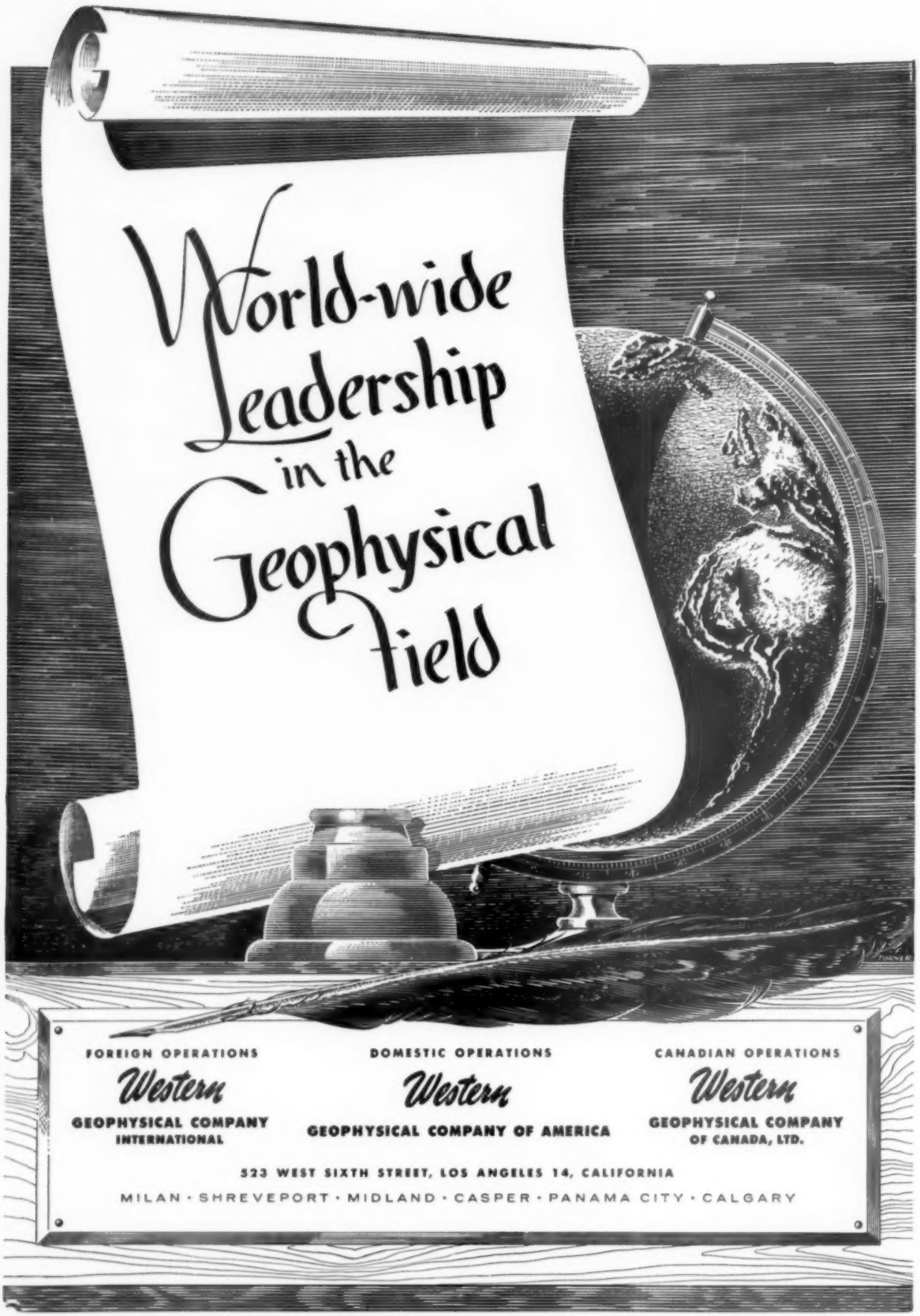
A connection with the Oklahoma Mississippi River Products line makes it possible for Oklahoma refiners to use the Little Inch line too (map).

Last week, however, after completing a test movement of 175,000 bbl. of LPG through the system, the company felt encouraged enough to set off a small bombshell:

Millard K. Neptune, head of Texas Eastern's Little Inch division, said that the company will now give "top priority" to extending the system for moving LPG all the way to mid-Atlantic and New England marketing areas.

Exactly how this is to be done, and how soon, Texas Eastern wouldn't say. But it would be no special hardship for the company to begin moving on this extension quite soon.

First of all, the company owns right of way for its natural gas line all the



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way from Moundsville to the New York City metropolitan area and could quite logically lay a products line along this route, saving plenty in right-of-way costs.

Another possibility is purchase or lease of one or more of the small-diameter products lines that link the Middle West and East Coast; at least one is said to be up for sale or lease.

Either way, Texas Eastern appears to be in good financial position to press the LPG issue: The company recently issued two series of preferred stock to help finance expansion plans.

In the meantime, LPG will move from the Little Inch system to Eastern markets by rail and truck.

Right now, Texas Eastern is making important additions to a key part of its existing LPG transmission system — the underground storage cavern it is building at Todhunter, Ohio (PW—May16'58p52).

Texas Eastern realized early in its planning that any pipeline looking for large LPG commitments would have to assure shippers adequate and economical storage facilities and guarantees that the product would not be mixed in any large degree with other products moving through the line.

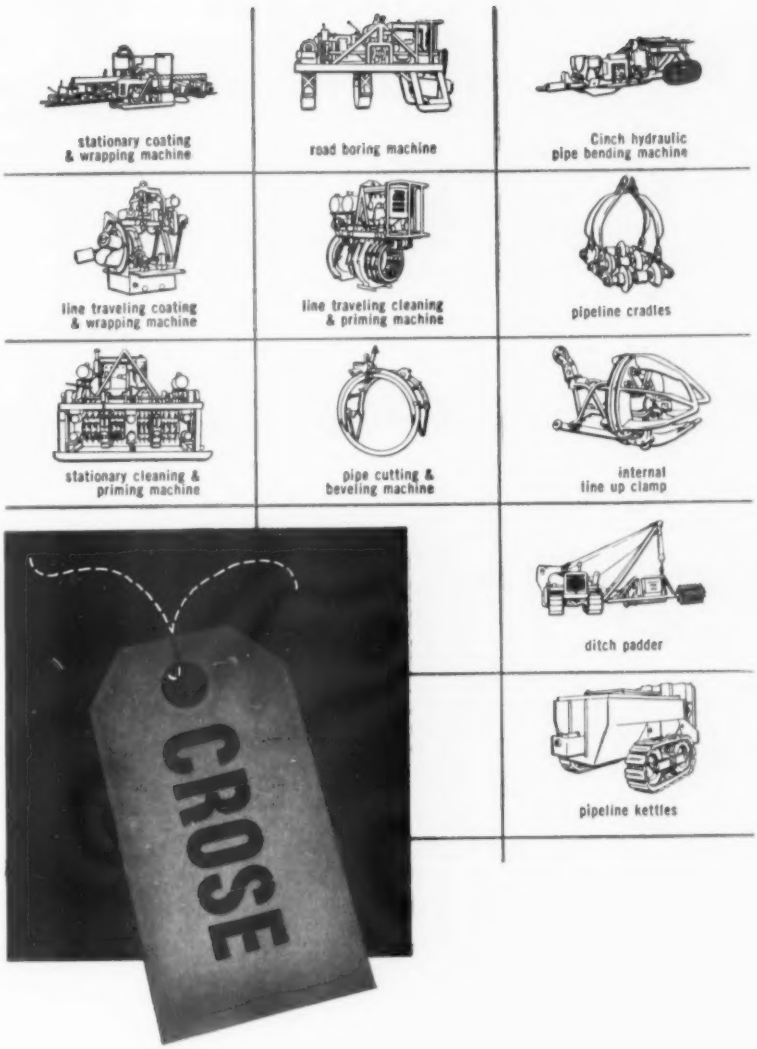
The Todhunter terminal, about 30 mi. north of Cincinnati, will be used to fulfill both promises to LPG shippers.

Right now work is moving along close to schedule on what, by spring will be a storage cavern capable of holding about 12-million gal. of LPG.

Drilling of a 42-in.-wide vertical shaft 350 ft. deep has just been completed, and preparations for excavating the cavern are now underway. The cavern is being mined out of shale.

The 12-million gal. capacity of the cavern may only be the beginning at Todhunter. The Texas Eastern tract

THIS 52-IN. DRILL "BIT" got work under way at Texas Eastern's Todhunter (Ohio) underground LPG storage cavern.



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there is large enough to permit construction of eight more caverns of the same size.

The cavern isn't the only activity at Todhunter however. Work has just begun on fractionation and dehydration facilities at the terminal.

When finished about December 1, the fractionator will insure against product contamination by separating any intermixtures that may form at interfaces between the LPG and gasoline while they are being moved through the line. Basically, the separation will be made by applying a great deal of heat to the mixed interfaces.

The dehydrator will then remove any moisture that may remain in the propane.

These and other facilities are planned in order to accommodate what is hoped will be an impressive increase in LPG traffic through the Little Inch products system.

Because LPG demand is seasonal, shipments of the product will vary in size a good deal according to the time of year. And Texas Eastern's line will move only "slugs" of the product, with a minimum shipment of 50,000 bbl.

Between fall and the spring of 1959, Texas Eastern expects to move LPG slugs of between 200,000 and 300,000 bbl. about once a month.

In three to five years, however, the company expects LPG shipments through its Little Inch line to blossom considerably, perhaps enough so that 500,000 bbl. slugs may move about once a week.

But competition to transport LPG is bound to remain tough for some time. One source of such competition is the proposed all-LPG line now under study that would also move this product from Southwest to Eastern markets.

This is the plan announced last fall by the Missouri-Kansas-Texas and New York Central railroads (PW—Oct.18'58,p11). The railroads say they plan a small-diameter line from Houston through the Midcontinent and Midwest to the East Coast to move about 40,000 b/d of LPG—and nothing else.

The railroads would use their own right of way for much of the pipeline route, thereby saving a great deal in right-of-way costs.

A final decision on this proposal is expected soon.

And both barge lines and railroads are still on the scene, pressing for their share of LPG business.

Barge men who operate on the Mississippi River fought long and hard against the Texas Eastern Little Big Inch reconversion. Even after the reconversion was a fact, a barge group complained to the Interstate Commerce Commission that the line's tariffs were too low. Railroad interests and the Buckeye Pipeline Co. have joined in the complaint. ICC hearings on the hassle are expected in late summer.

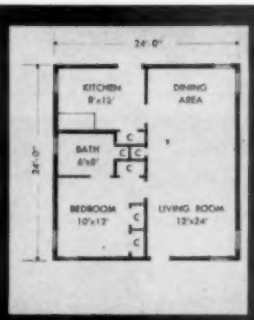
Railroads are fighting for the LPG business on the tariff front too.

LPG rail freights were recently reduced by 8% in ten Southeastern states (PW—Jul.4'58,p29). Eastern roads are now considering cutting such rates too.

This interest in LPG transportation isn't hard to explain: LPG sales, now about 7-billion gal. a year, are expected to keep climbing steadily.

LPG demand last year jumped 4% over its 1956 demand, which in turn, was 10% above 1955 (PW—Dec.27 '57,p14) and demand estimated for this year and the years beyond are just as encouraging.

LPG transporters say that several large markets are just beginning to realize their full potential, including LPG use as a petrochemical feedstock, motor fuel, a home heating fuel, and in many additional industrial applications.



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Tube-Turn fittings are typical of the line of quality equipment stocked and distributed through National's 130 stores.

You say you want complete stocks?

If you've had problems getting stock fittings and parts in a hurry, National Supply can solve them. Stop in and see the complete stocks of Tube-Turn fittings and other quality products we maintain . . . and take your time looking around. The doors and gates to our store, warehouse, equipment yard or pump shop are always open, and it will pay you to walk in and get better acquainted with our store people and the stocks they offer. We've built counters in the fronts of our stores for convenience—not as barriers.

As you walk back and around, you'll see ample stocks of products like these Tube-Turn fittings, Rockwell-Nordstrom valves, Ajax Engines, Oilmaster pumps and Link-Belt chain. The list of outstanding equipment is a long one, and we're pleased to be associated with every name on it.

More important than complete stocks is the fact that this is equipment you can use to operate profitably. Having it ready for you, when and where you need it, is our business, and we have 70 years of experience in it.

The next time you stop in a National Supply Store, shop behind the counter, too.

NATIONAL

"Extras" and "Special Features" in other units are STANDARDS in National Pumpers!

EXAMPLE: ACCURATE COUNTERBALANCING Because of the geometric and concentric design of cranks and counterweights, National Pumpers allow the best counterbalance—at a leading or lagging condition *as well as at mid-stroke*—you can obtain today. Counterweights can be quickly and safely adjusted by one man, in a method that's far superior to slab adding or subtracting systems.

EXAMPLE: GEAR REDUCER DESIGN—National gear reducers meet or exceed all API specs, and can be rotated in either direction. This permits more latitude on prime mover placement, and extends the life of the reduction unit. Other units without proper geometric design or with one-direction lube systems can't use reverse rotation for these benefits.

EXAMPLE: GROUND LEVEL LUBRICATION—This is a desirable *standard* safety and convenience feature in all National Pumpers for which you pay no extra charge.

EXAMPLE: ARC HANGER DESIGN—National's arc hanger has a hinge which allows you to fold it back for unhindered well servicing. It also has self-adjusting features which prevent side loading, polish rod bending and excessive wear on stuffing box packing. Many other pumpers lack these practical, economical features.

EXAMPLE: CRANKS—The gear reducer is placed on sub-base on crank-counterweighted National models. This places it at a height which prevents the weights from traveling below the unit base, and thus eliminates side pit digging for proper clearance. Split cranks are used for easy field removal and replacement—no solid cranks to cause extended down time, transportation and machine shop expenses.

EXAMPLE: BEARINGS—National provides the best frictionless bearings for the loads and motions involved in pumping unit operation—straight or tapered style roller bearings on all fully rotating shafts, and proven needle type bearings at points where limited or oscillating motions are present. These bearing selections mean minimum horsepower losses through the unit and greatly increased bearing life.

EXAMPLE: DUST SEALS—National Pumpers have dust excluders on all bearings to improve the life of oil seals and bearings. Dust seals on shafts rotate with, but do not touch, the shafts, and are extremely efficient.

EXAMPLE: OVERALL STABILITY—National Pumpers have wide spacing of the samson post's four legs plus cross bracing. This makes them far less susceptible to twisting or stressing due to improper unit setting than units of small leg spread, three-leg construction or without cross bracing.

There are many more specific examples which prove that the best pumper investment for lowest operating costs is National. The National man in your area will tell and show them to you any day you choose.

National Pumpers are available in 22 standard API sizes, plus several long stroke and portable variations.

More National equipment for profitable production on next page

Precision manufacturing operations and painstaking inspection methods insure the traditional quality in every finished National Rod shipped to the field.

You get low-cost sucker rod service with a National String!

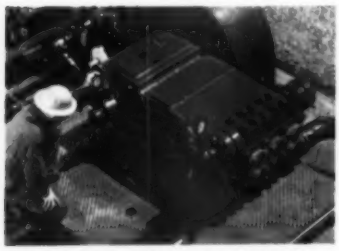
There are three main reasons. National Sucker Rods are:

1. **ENGINEERED** for maximum resistance to shock, corrosion, fatigue and impulse loads.
2. **QUALITY-CONTROLLED**—from laboratory testing of sucker rod steels to final shipment inspections—to give you the ultimate in uniformity, dependability and economy.
3. **PRECISION-MANUFACTURED** on specially-developed machines—in accordance with the strictest specifications in the industry.

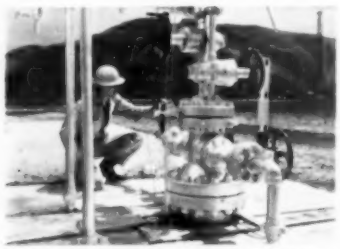
National Rods reach you in factory condition, too, whether you get them from National Supply Store stocks or directly from the mill. National's careful methods for stacking, handling, shipping and field storage have been proved by hundreds of shipments to all parts of the world.

Of course, National has a rod grade for every well condition—normal, mildly corrosive, heavy corrosive or sulphide wells. National Hollow Sucker Rods and Plastic-Coated Rods are also available for special conditions.

From any standpoint, the choice of a National Sucker Rod string means low-cost sucker rod service. You'll find it worthwhile to review your rods needs with the National Supply field man in your area.



National Triplex Pumps are reliable on a host of oilfield pumping jobs including waterflooding, salt water disposals, formation fracturing, and as power-oil sources for subsurface hydraulic pumps.



National Wellhead Equipment features interchangeable units which provide many combinations for your specific size, capacity and type needs. Ease of assembly and pre-tested safety are two of its outstanding advantages.

National Plunger Lift can be the best production method for certain types of wells. It uses formation gas or injected gas for operation, has low initial and service costs. Equipment is also available for gas well operation to remove liquids and maintain a uniform and increased flow rate of gas.

THE **NATIONAL SUPPLY** COMPANY
Two Gateway Center, Pittsburgh 22, Pa.
DIVISION OFFICES: Calgary, Dallas, Denver, Houston, Toledo, Torrance, Tulsa
EXPORT: 600 Fifth Avenue, New York 20, N.Y., U.S.A.; City Wall House, Chiswell Street, London E.C.1

What's New / IN TRANSPORTATION

More new projects to store natural gas in underground caverns are on the way.

Except for last year, the total capacity of underground natural gas caverns has been growing steadily. In 1957, however, discontinuance of a large storage project dropped capacity to 2.6-trillion cu. ft. from a 1956 total of 3.4-trillion cu. ft., according to the American Gas Assn.

The projects announced last week will help get the underground gas storage capacity back on the growth trail:

Ohio Fuel Gas Co. plans an 8.5-billion cu. ft. storage cavern in its depleted Medina gas field in Ashtabula County, Ohio. Last week Ohio Fuel got a Federal Power Commission O.K. to proceed with the project. By November, 1961, Ohio Fuel figures, it will have about 7.7-billion cu. ft. injected into the storage cavern. The conversion will cost about $5-million.

Washington Water Power Co., of Spokane, is also considering storing natural gas in underground caverns. Next week Spokane county commissioners will discuss leasing a site just north of the city for the storage plan.

Pacific Northwest Pipeline Corp. supplies Spokane with gas.

•

Both British American Oil Co. Ltd. and Imperial Oil Ltd. plan new Canadian terminals.

British American plans marine terminals at Dartmouth, Nova Scotia, and Ft. McMurray, Alberta. In addition, BA is expanding storage at three other terminals—Sault Ste. Marie, Quebec City, and Victoria, B. C.

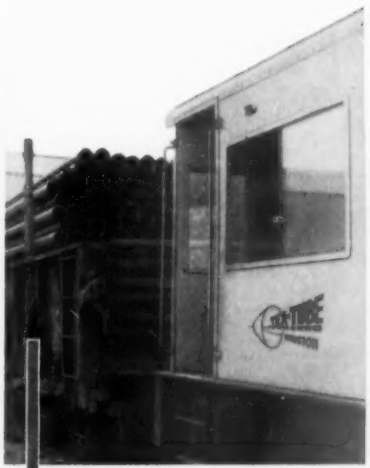
Imperial is building its new terminal at Cutler, Ontario. The terminal will have a storage capacity of 67,000 bbl. of diesel oil, and 54,000 bbl. of fuel oil.

New Product Line: Lebanon to Jordan

Here's the latest in transporting gasoline under emergency conditions—a U.S. Air Force C124 Globemaster being emptied of its gasoline cargo last week by Jordanian soldiers at the Amman (Jordan) airport. The Air Force has used six Globemasters, each with a 25-ton payload, to keep Jordan supplied with gasoline. The little pro-Western nation was cut off from its petroleum product supply shortly after the revolution in Iraq. Jordan has no refineries of its own. The gasoline is being flown in from U.S. forces in Lebanon.

Our Customer Saved $2407 per Mile of Pipe on this Trainload of Tex-Tube Lightwall High-Tensile Pipe

You can do the same!



Tex-Tube switching engine shown pulling a trainload of 6⅝" O.D. Lightwall High Tensile Pipe at the Houston Plant.

Sales Offices in Midland, Texas
Tulsa, Oklahoma
Baton Rouge, Louisiana

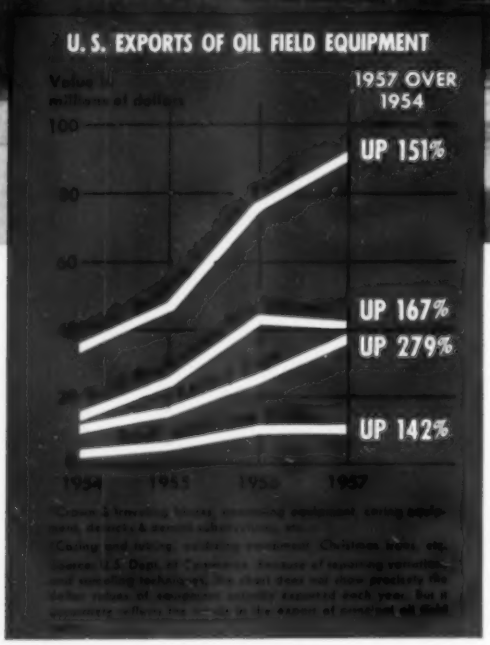
TEX-TUBE, INC.

1503 NORTH POST OAK ROAD
HOUSTON, TEXAS

LICENSED BY THE AMERICAN PETROLEUM INSTITUTE

The Competition Gets

In 1958-1959:



DRILLING RIG, National Type 110, Africa-bound from Houston.

79 Industry Men Talking

Men from 79 U.S. companies with an overseas stake answered questions for this PETROLEUM WEEK survey report. Commenting were top and middle-management men from 13 major and independent oil companies, 57 oil equipment and supply firms, and 9 refinery service firms. Answers to questions on the following pages do not have exact totals, since some companies omitted questions, or gave multiple replies.

Hot in Overseas Oil Equipment

There will be plenty of capacity for oil men's needs.

Foreign sellers are thriving on dollar shortages abroad.

U.S. equipment men 'go foreign' to protect their sales lead.

The equipment picture looks good for U.S. oil men overseas. A Petroleum Week survey shows the equipment supply to be ample in almost all lines. And prices will be rising only against heavy pressure. A big reason: the loose condition of worldwide oil supplies. Many lush fields in the Middle East, South America, and Canada are looking for market outlets.

Although oil demand abroad this year will be 8% above the 1957 level, the gain will be under the rates of increase in recent years. In the years 1954-1958, the average annual Free World (ex U.S.) demand gain was 10.4%.

Lagging U.S. domestic oil demand, which will show a rise of only 1% or 2% this year, will not help tighten conditions. Barring another Suez-type crisis that chokes the flow of Middle East oil, there will be no heavy new requirements for oil equipment and supplies. Result: Most oil managements will continue to show a more conservative attitude toward foreign expenditures than in the past several years.

There is a current "plateau" in the demand for new equipment that shows up in answers of a dozen oil companies to Petroleum Week's survey. The six biggest spenders all show declines this year. Companies in the list are a fairly representative cross section of U.S. firms operating abroad, although some big overseas operators are not covered.

Question: Can you estimate the dollar-volume of all your company's purchases of equipment and supplies for overseas use—and also estimate what percentage represents exports from the U.S.? (In this and other questions, shipments from the U.S. to Canada are excluded from exports.)

Answers:

(Figures in millions of dollars.)

Oil company	1957	1958	1959
A*	$49 (100%)	$42 (100%)	$40 (100%)
B	$27 (63%)	$18 (77%)	$21 (67%)
C	$10 (85%)	$ 3.5 (71%)	—
D	$ 6 (100%)	$ 4 (100%)	—
E	$ 5.9 (86%)	$ 5	$ 5
F	$ 4 (99%)	$ 0.5 (90%)	$ 0.5 (90%)
G	$ 2.1	$ 5.1	$ 7.3
H	$ 2 (100%)	$ 3 (95%)	$ 3 (75%)
I	$ 2	$ 2	—
J	$ 1.7 (70%)	$ 3 (73)%	$ 3.5 (71%)
K	$ 1.5	$ 2	—
L	$ 1.4 (88%)	$ 2.5 (90%)	$ 5 (75%)

*Asiatic Petroleum Corp., which buys oil equipment in the U.S. for resale to Royal Dutch Shell companies abroad.

Highlighting the tailoff in oil company operations this year is the drop in the number of drilling rigs running at foreign locations—from roughly 1,100 late last year to somewhere between 800 and 900 now. This reverses a nine-year rising trend (figures are approximate):

Year	Western Hemisphere	Eastern Hemisphere	Total
1949	360	155	515
1950	330	175	505
1951	440	200	640
1952	510	230	740
1953	495	255	750
1954	470	385	855
1955	545	400	945
1956	610	445	1,055
1957	645	455	1,100

An important reason for today's comfortable equipment position is the post-war expansion by the U.S. equipment and supply industry. Capacity has been built to service a high level of oil activity abroad. One index of this capacity is the export-volume increase shown in the chart on the page opposite.

Another index is the statistics that follow, prepared by Petroleum Equipment Suppliers Assn. and the Business &

continued ▸

Equipping Oil Overseas

PIPE DOUBLE JOINTER of M. J. Crose Mfg. Co., trucked from Tulsa to Houston. Destination: Algerian desert.

GEOPHYSICAL GEAR loaded at Houston for shipment to Libya by Geophysical Service Inc., which is expanding overseas.

Defense Services Administration. (The table shows shipments of oil field machinery and equipment, and performance of oil field services. The figures are partially estimated, with the final 1957 totals believed to be somewhat higher than shown.)

	Export shipments & services	*Domestic shipments & services*	*Total shipments & services*
1957	$236,454,174	$886,501,520	$1,132,955,694
1956	210,129,516	n.a.	n.a.
1955	129,656,494	966,943,364	1,096,599,858
1954	99,447,714	827,798,152	929,245,866

n.a.—Not available.

Swelling the industry's oil equipment capacity are the new plants being built abroad by foreign manufacturers. These firms have been crowding their way into oil equipment markets formerly served almost exclusively by U.S. firms exporting from this country.

The outlook is not for equipment sales doldrums, however. Many oil companies are weathering the recession by deferring purchases—thus creating a pent-up demand for equipment that could make itself felt in 1959 and 1960.

An oil field equipment man says, "Despite the slowdown, we expect both our foreign and export sales to increase this year."

There are also signs that the foreign market for oil field specialty items and services is far from filled. Foreign manufacturers so far have mainly entered high-volume production of more or less standard items. This means that some U.S. equipment, supply, and service firms could run far ahead of their industry's sales average in the next few years.

As for the long-term picture, few seem worried. Industry men expect to see a lot of exploratory drilling in the next decade. Says H. E. Lowrey, manager of Continental-Emsco Co.'s export division in New York, "We expect to see an increase of 100% in the number of rigs overseas in the next 10 years—or something between 750 and 1,000 more rigs. As the world oil market situation improves, a lot of money will be spent to develop new reserves. Eventually foreign operations may match the U.S. in the number of rigs running."

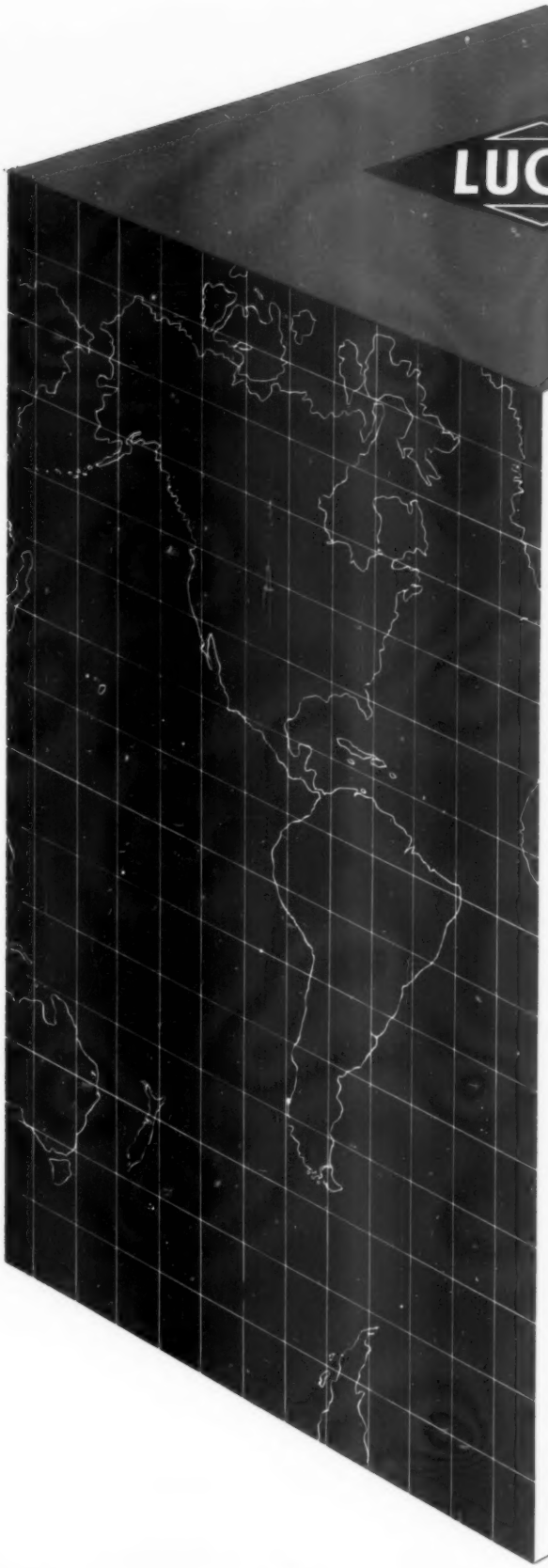
continued ▸

Delivery of Power-Driven Rotary Rigs

Total—Domestic—Export

Horsepower	1949			1950			1951			1952*			1953			1954			1955			1956			1957		
	Tot.	Dom.	Exp.	Tot.	Dom.	Exp.	Tot.	Dom.	Exp.	Tot.	Dom.	Exp.	Tot.	Dom.	Exp.	Tot.	Dom.	Exp.	Tot.	Dom.	Exp.	Tot.	Dom.	Exp.	Tot.	Dom.	Exp.
100 to 159	111	74	37	219	182	37	275	254	21	345	313	32	23	19	4	35	31	4	81	55	26	47	37	10	29	16	13
160 to 249	44	39	5	91	80	11	114	95	19	93	81	12	79	66	13	45	37	8	88	67	21	43	34	9	31	26	5
250 to 399	77	61	16	67	60	7	99	90	9	111	97	14	72	58	14	59	48	11	107	88	19	64	49	15	50	27	23
400 to 629	55	47	8	108	97	11	162	141	21	118	111	7	74	58	16	76	56	20	63	52	11	91	56	35	73	32	41
630 to 999	21	16	5	53	50	3	66	58	8	81	74	7	46	41	5	41	30	11	47	25	22	43	22	21	45	13	32
1000 to 1599	33	22	11	18	18	0	32	26	6	43	26	17	50	43	7	40	35	5	58	50	8	52	38	14	48	19	29
1600 to 2499	5	5	0	1	1	0	0	0	0	4	4	0	2	1	1	5	5	0	10	10	0	12	9	3	16	16	0
Total, All Rigs	346	264	82	557	488	69	748	664	84	795	706	89	346	286	60	301	242	59	454	347	107	352	245	107	292	149	143

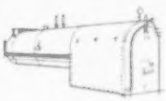
*Total to end 1952 includes shot holes and water well rigs.



LUCEY *Export*

INTERNATIONAL DISTRIBUTORS

of Quality Oil Well Drilling Equipment



Beck "Melloblu" Gas Burners
Byron Jackson Products
Chain Belt Company Sprocket & Roller Chain
Hughes Rock Bits and Tool Joints
Lucey Boilers and Insulation Casings

Mission Pistons, Liners, and Valves
Parkersburg Derricks, Brakes, and Tanks
Pittsburgh Steel Oil Country Tubular Goods
Reddaway Brake Blocks and Linings
Reed Rock Bits and Tool Joints

Security Engineering Products
Thermactor Electric Oil Well Heaters
Totco Drift and Directional Recorders
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LUCEY *Export*

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West Building, Houston, Texas

Photo courtesy of Caterpillar Tractor Co.

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Due to its localized nature, highway building is a natural market for jobbers who offer on-the-site service and quality products.

If you are selling finished products under your own brand name, Sun can offer you a complete line of high quality lubricants. All have been thoroughly field tested and meet the most severe operating conditions. Top performance is assured.

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In Canada: SUN OIL COMPANY LIMITED, Toronto and Montreal

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Biggest problems overseas for U. S. equipment firms

Factors chiefly responsible for the gains of foreign equipment firms

	Number of mentions
Currency (dollar shortage)	18
Competition from foreign equipment manufacturers, especially in lower prices	9
Foreign government restrictions	6
Personnel	11
Sales representation	6
Communications	5
Financing	3
Customer education	3
Other (one mention each)	7

Foreign Manufacturers Are Moving In

U.S. oil equipment firms are finding it hard to battle currency problems abroad and high costs at home—and still hold their position overseas.

Other things being equal, the American oil man still wants to buy his equipment and supplies from American firms. But overseas, things are no longer equal. Aggressive foreign equipment companies are digging deeply into the American export market—and even invading the U.S. for extra business. Evidence of the concern of U.S. manufacturers over this competition is in their survey listing of "biggest problems" overseas (table, above).

This is far from meaning that U.S. equipment exports will shrink. Evidence of the impact of foreign firms, however, shows up in the worldwide payments for materials and freight by Arabian American Oil Co. and its subsidiary, Aramco Overseas Co. Payments in the U.S. and Canada dropped 5.3 percentage points in two years—from 47.6% of the total payments in 1955 to 42.3% in 1957.

	1957 Payments	1956 Payments	1955 Payments
Europe	$32,447,000	$37,958,000	$23,717,000
Middle East	4,362,000	4,018,000	3,429,000
Far East	1,285,000	1,364,000	1,563,000
Miscellaneous	32,000	30,000	4,000
Total	38,126,000	43,370,000	28,713,000
% of worldwide	**57.7%**	**56.7%**	**52.4%**
U.S. & Canada	28,007,000	33,105,000	26,091,000
% of worldwide	**42.3%**	**43.3%**	**47.6%**
Grand total	$66,133,000	$76,475,000	$54,804,000

The gains being made by foreign manufacturers are striking in tubular goods. Says a tubular division superintendent in one of this nation's largest steel mills, "When you see Italian pipe on the Gulf Coast, you know there's a problem. We're getting competition from Germany, Japan, Australia, New Zealand, and elsewhere. I've looked at some of this pipe, and it's good quality."

Adds a manager with an export supply firm, "We recently lost 100% of our tubular goods business in Brazil to the Japanese. They've been set up with API gauges, and their product is up to U.S. standards.

"But it's not only the Japanese. The Yugoslavs and the Mexicans are in the act. Everyone is looking for business.

"We have been trying very hard to supply only U.S.-made equipment. But by 1959 we will have to do more buying from European equipment firms, even though it complicates everything. Things are going to get a lot rougher before they get better."

Oil equipment sales by British companies have doubled since 1951. Last year, more than a third of a billion dollars worth of equipment was sold by British manufacturers to oil firms with offices in Great Britain. Oil equipment exports from Britain have increased by 6% to 10% a year since the end of the last war.

Germany, France, and Italy are also large factors in the foreign equipment picture. The Germans have been especially active in developing their own products, such as drilling rigs and offshore platforms.

U.S. equipment men expect plants abroad (either U.S.- or foreign-owned) to increase their percentage share of the oil equipment business. "Already," says one equipment man, "the refinery service firms are getting in excess of 95% of their equipment needs from nondollar sources. This is now beginning to be true for drilling and production equipment, too. Drilling rigs, for example, are now being built in Britain with 80% of the complete equipment being supplied either by the British affiliate of the U.S. manufacturer, or by British-controlled manufacturers. Only 20% is exported from the U.S.

"As the years pass, Britain will increase that 80% share. And the same pattern will be followed in France, Germany, and Italy."

Why are the equipment suppliers overseas gaining? They have a solid advantage in being able to accept soft currencies—rather than dollars—for their products. Such sales allow oil companies to work off soft currencies

continued ▸

FROM GERMANY comes reactor column for Arabian American Oil Co. in Saudi Arabia. Pontoons floated column ashore.

that they have generated in their foreign operations.

The need to do this is a real problem for the oil firms. Gulf Oil Corp., for example, excludes from income the profits from sales made in foreign currencies until the profits are converted into dollars, or otherwise used. At the end of 1957, Gulf had on its books $58,848,000 of income deferred in this way.

About three-fourths of the Free World nations restrict the number of dollars that may be spent for equipment exported from the U.S.

The situation is not improving with time. PETROLEUM WEEK's survey asked U.S. equipment and supply companies, and refinery service firms a question on how they see currency problems overseas, especially the trouble in converting soft currencies. The greatest number, 23, term these problems "getting worse." Only 5 see currency matters as improving. And 20 believe things are "staying the same."

"No question about it," says a supply company executive, "the dollar shortage is what opened the door to the foreign manufacturing expansion. When a country slaps on currency controls, quality and price go out the window. Some drilling contractors have actually had to use inferior equipment because the higher-quality dollar equipment was impossible to get."

Another disadvantage for American firms is what one equipment man calls "the question of what we are going to do about the high price of U.S. equipment." Some foreign manufacturers are riding high on their price advantage.

Reports an export supply firm's manager, "We have priced the same valves made in the U.S. and in the United Kingdom, for shipment to the Middle East. The U.K. f.o.b. price is 55% cheaper, and the U.K. isn't so slow in delivery that the higher U.S. price is justified. So what's happening? Some U.S. companies are actually importing British valves to the U.S."

Adds a supply firm official, "The big tonnage in the foreign sales is in tubular goods, from various countries. It's difficult for us to justify meeting the prices of some tubular goods coming into the U.S., much less compete overseas. Both oil majors and independents are taking advantage of a price situation.

An executive with a smaller equipment firm takes a grim view of the long-term picture: "You can already be 50% high on something you're shaving to the bone. With wages rising, there's no way to go down on prices. The labor unions are hurting U.S. industry badly. I hope they realize that. Before you know it, we're not going to have much export business on standard items like casing."

Furthermore, industry sources are predicting that equipment prices will edge up higher this year, much as management on both the buying and selling ends object to increases. Results of PETROLEUM WEEK's poll:

Question: Do you think the prices of oil equipment and supplies and service will change this year (other than in very minor adjustments)?

Answers:

	No change	*Up*	*Down*
Equipment & supply firms	35	9	4
Oil companies	3	7	0
Refinery service firms	5	0	0

Sums up a supply official, "If the price of steel goes up, of course, there will have to be advances all along the line. But even if steel doesn't go up, there probably will be some small adjustments upward for oil field equipment. These are due. We have wage increases to meet ourselves. Our own suppliers will present us with price increases."

Says another supply company executive, "It all depends on U.S. Steel. I'm positive steel prices won't go up $5 a ton. I'd hate to see any increase."

American oil and equipment men also report a slight deterioration in another area harmful to U.S. manufacturers—foreign tariffs and curbs on imports of equipment.

Question: Are tariffs and other restrictions on imports of oil equipment and supplies into overseas countries improving or not?

Answers:

	Getting worse	*Getting better*	*Staying same*
U.S. equipment and supply companies and refinery service firms	6	3	17
Oil companies	2	0	12

"You can't really say there's been a significant change," observes an equipment firm's export manager. "The restrictions are getting worse to the extent that other countries are putting duties on new equipment as its manufacture starts within the countries. On the other hand, many countries wanting to develop their oil resources are welcoming imports of U.S. equipment.

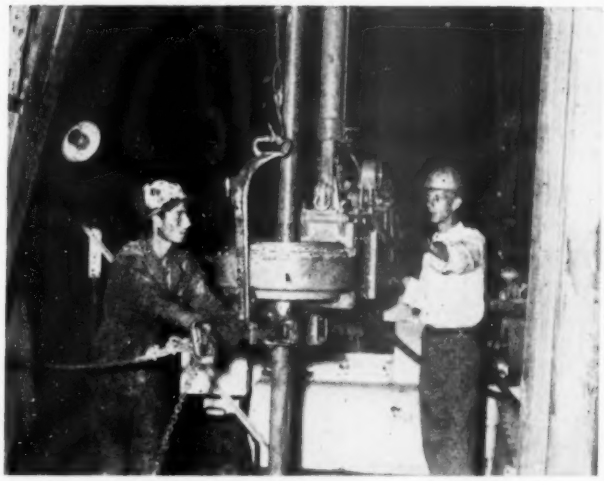
"Before you know it, we're not going to have much export business on standard items like casing."

New Achievement by Foster . . . NOW . . .

POWER TONGS

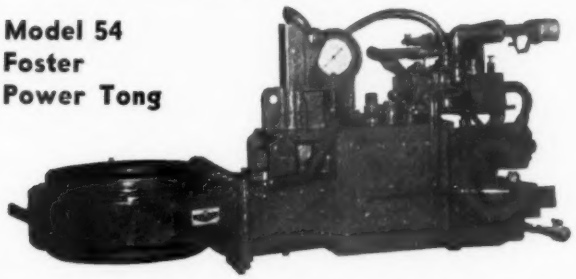
to Make and Break Slim Hole

DRILL PIPE



Breaking out drill pipe on LaGrange Oil Co. Slim Hole rig near Vidalia, Louisiana

Model 54 Foster Power Tong



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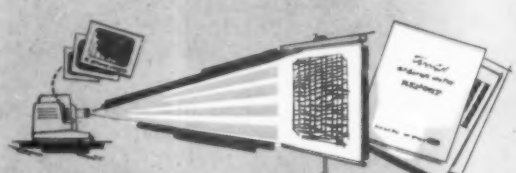

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Oil men rate U. S. equipment firms best

Q. *Generally, how would you rate U.S. and foreign equipment and supply firms (1, 2, 3, 4) on the four factors listed below?*

A. By 9 oil companies and 3 refinery service firms (lowest rating is most favorable):

	Price	Quality	Service	Speed of delivery
U.S.-based firms	1.7	1.3	1.5	1.7
Their overseas subsidiaries	1.7	1.8	1.3	2.4
Foreign licensees of U.S. firms	2.3	2.4	2.4	3.0
Foreign firms without licensing	2.5	3.1	3.1	3.0

American Suppliers Out to Keep Lead

U.S. equipment and supply firms are fighting foreign competition with licensing, investment in plants overseas, and harder selling.

Oil companies busy looking for reserves abroad will find the U.S.-based equipment manufacturer in the picture for a long time to come. Reason: The oil men themselves agree that firms exporting from the U.S. are doing the best over-all job. Even in subsidiary and licensing operations overseas, the U.S. equipment companies still lead their foreign competition (table, above).

Furthermore, the equipment men predict that, industry-wide, they will actually increase their ratio of export business. Evidence that they mean business: 32 out of 39 equipment and supply firms in the survey have export divisions or offices in the U.S.

Question: Roughly what percentage of your total sales are exports from the U.S.—and what will it be next year?

Answers: By 33 equipment and supply companies:

Company	1957	1958	1959	Company	1957	1958	1959
A	100%	100%	100%	Q	20	30	—
B	100	100	100	R	20	23	27
C	100	100	100	S	20	20	20
D	99	95	90	T	13	15	—
E	90	90	75	U	12	14	20
F	90	85	80	V	10	20	35
G	85	85	75	W	10	20	30
H	70	60	60	X	10	15	20
I	50	55	—	Y	10	15	15
J	50	50	50	Z	10	15	—
K	35	30	35	AA	10	10	15
L	35	35	35	BB	6	10	10
M	25	30	35	CC	6	6	8
N	25	30	30	DD	5	5	5
O	25	25	25	EE	4	2	6
P	25	15	12	FF	2	4	5
				GG	2	1	—
Unweighted average					35.6%	36.7%	39.9%

"If there is a choice," says John D. Evans, of Lucey Export Corp., New York, the oil companies prefer U.S. equipment. It has authority and prestige. It's the world-wide standard. And the U.S. companies give much better service than the foreign companies."

Says a New York export man, "Most of the foreign manufacturers make their goods only for order. They have little conception of manufacturing for stock, and as a result have long delivery times.

In addition, the equipment men plan to step up their expenditures for expansion abroad next year, although survey results on dollar spending are too scattered to give more than a random indication of planning:

Question: Can you estimate your overseas capital expenditures?

Answers: By equipment and supply companies:

Company	1957	1958	1959
A	$4,900,000	$4,750,000	$4,900,000
B	2,900,000	2,000,000	1,500,000
C	1,000,000	700,000	800,000
D	500,000	500,000	1,000,000
E	500,000	150,000	—
F	250,000	100,000	100,000
G	200,000	100,000	100,000
H	200,000	100,000	—
I	150,000	200,000	—
J	120,000	50,000	75,000
K	75,000	100,000	50,000
L	50,000	60,000	70,000
M	—	55,000	300,000

Thus, even before budgets are finally approved for next year, a majority of the equipment and supply firms replying are planning to top 1958 spending in 1959—although the projected level is still below that for 1957.

National Supply Co., for example, which has quadrupled its investment in Venezuela since 1954, expects to expand steadily. "This will be true," says C. B. Carter, National's

continued ▸

RIG-UP of Continental-Emsco Co. drilling rig at the company's Houston plant tests equipment before export to Libya.

OIL FIELD TRUCK, made by Autocar, being shipped by Pure Oil Co. for exploration duty in rugged northern Paraguay.

export division sales manager, in New York, "even if the number of rigs in the country doesn't expand. We haven't come to the plateau yet."

Adds Carter, "We plan to expand in other foreign areas this year and next. The recession doesn't mean cutting out all expenditures to go sit under a log."

In PETROLEUM WEEK's survey, 26 of 36 equipment and supply firms say they plan to expand their facilities or services overseas in 1958 or 1959. This is almost the same ratio as in 1957, for which 26 of 38 indicated expansion.

The competitive conditions overseas are forcing some big decisions by equipment company management on whether to continue to export U.S.-made products or to push either licensing of foreign manufacturers, or direct investment in manufacturing plants overseas.

"There are a lot of ways you might go," says an equipment and supply company manager. "There's straight licensing, with no investment and no sales cost—with maybe 5% coming back. Next, you might take on resale rights, with a license. Next, there's subcontracting. And then you might build your own plant in the foreign country and sell the equipment yourself. Each requires a greater expenditure, but also yields more profit—you hope."

Each of the principal methods is getting good backing.

Question: Which of the following methods do you feel will be most advantageous as a way of providing equipment and supplies for oil companies overseas in the next five years?

Answers:

	Number of votes
Manufacture in the U.S. and export	27
Direct investment by your company in overseas facilities	15
Licensing of foreign manufacturers	20

Dozens of U.S. firms have now licensed their manufacturing processes to foreign manufacturers. About one-third of the equipment companies in Petrolem Week's survey say they have such arrangements. Typical reason for the spread of licensing, given by an equipment-firm manager, "You eliminate many of the disadvantages in trying to operate abroad from an office in the U.S. We have done a lot of expanding through licensees in 1957 and 1958 that hasn't cost us capital."

A partial list of items now licensed by American firms (mostly in Europe): Drilling equipment (including complete rigs), well-servicing equipment, drilling and fishing tools, casing, wellheads, production pumps and systems, meters, evaporation loss equipment, airborne geophysical surveys, helicopters, electronic remote gauging, seismic equipment, tongs, trailers, counterbalance spooling systems, floating roofs for storage tanks, and a variety of refinery construction equipment.

However, the low return and the need for technical service in licensing are acting as a brake on any headlong rush into the practice. The survey asked equipment and supply firms and refinery service companies if they plan to start, or to increase, their licensing of foreign manufacturers. In reply, 10 say yes, 14 say no.

"You can have too many licensees," says a veteran export manager. "Like other companies, we are swamped with offers for licensing deals. Many countries have the idea that getting licenses is the way to build up their economy and their dollar position. But they have the dollar drain of getting the equipment in to start. They cut up the market and make their situation worse."

Observe the general manager of an oil field machinery firm, "The licensee approach requires a considerable amount of technical assistance and education, plus con-

continued ▶

"If there is a choice, the oil companies prefer U.S. equipment. It has authority and prestige."

SUPPLY STORE of National Supply Co.'s Venezuelan subsidiary at Maracaibo. Company has three others in Venezuela.

PIPE YARD of Brown & Root, Inc., near Lake Maracaibo, Venezuela. Here 30-in. pipe is weight-coated for use in lake.

tinuing home-plant servicing to the licensee—in return for a moderate royalty payable in dollars."

Due for increasing emphasis are overseas subsidiaries to make or sell oil equipment. Some of the big names in the U.S. equipment business are planning to expand their own manufacturing in foreign lands. Half of the equipment and supply firms surveyed say they already have overseas subsidiaries. Sample survey comment:

- "The biggest gain will come in plant construction overseas, not in licensing. We are about ready to decide on a big expansion in production at our United Kingdom plant."
- "The foreign equipment business is going to be real good. But I'm not sure goods will be exported from the U.S. You may never build a rig on the Ivory Coast. But it will be exported from somewhere else besides the U.S."

Oil field equipment companies such as Mission Mfg. Co. and Hughes Tool Co. (with plants in northern Ireland) and National Supply Co. and Continental-Emsco Co. (with plants in England) are examples of firms with foreign subsidiaries turning out equipment completely interchangeable with that made in the U.S.

Big advantage in foreign plants is that a company may build and sell in soft currencies. Drawbacks: Construction abroad costs too much for many companies.

National Supply Co., which sells more oil field equipment overseas than anyone else, is convinced the future belongs to the companies that do the best selling and service job.

Says T. B. Herndon, National's manager of oil field sales, "We are basically producers of oil field machinery and tubular goods, but roughly one-third of our business is made up of buy-out items that we purchase from other manufacturers. This includes everything from heavy machinery to wiping rags. As overseas competition began to stiffen, we accelerated our selling effort, not only on company-made products, but most particularly on merchandising items that we buy from others.

"The trend over the next 5 or ten years at least will be toward more and more aggressive equipment and service selling of oil men, regardless of where they are located throughout the world."

Adds A. R. Meyer, vice-president and manager of National's export division, in New York, "Supply companies will have to get into the supply business overseas with both feet. Instead of handling just the big pieces of equipment, they'll have to supply all the small parts, too."

The swing to contract drilling overseas is boosting the supply companies stock abroad.

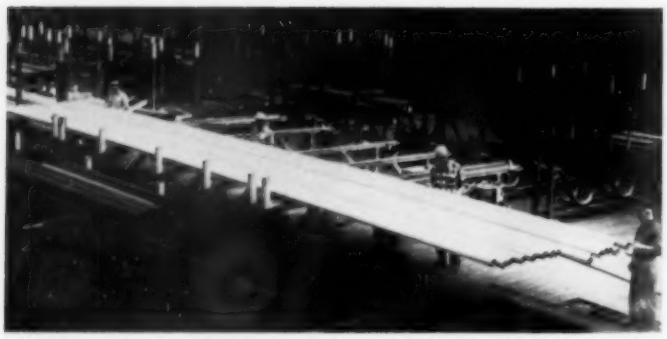
"Until recent years," says Meyer, "oil companies did their own drilling and could develop their own long-term sources of supply directly with the manufacturers. But the drilling contractor has always depended on the supply companies to handle the procurement of his equipment and supplies."

One supply company executive feels that a sales drive behind foreign-made goods can actually be good for export trade from the U.S. He explains, "We can't keep Europeans from manufacturing equipment. They'll be competing for business in the Sahara, where there may be 200 drilling rigs in the next four or five years. The French industry won't be able to supply them all. If we can help supply some from France by working with French firms, we stand a good chance of supplying others from the U.S. by export. If we don't do it, someone else will."

Many companies have already geared up their sales attack overseas. National Supply, with an export division of 225 employees, has 19 commission agents in 22 foreign

continued ▸

"We plan to expand . . . The recession doesn't mean cutting out all expenditures to go sit under a log."



STAINLESS STEEL TUBING, made by Babcock & Wilcox Co. for cracking furnace of oil company abroad, typifies popular U.S. "specialty" exports.

PUMPING UNIT, one of world's largest, ticketed for South America by Parkersburg Rig & Reel Co.

nations. These are in addition to National's globe-circling engineering service, plus offices and subsidiary plants in various countries, including four supply stores in Venezuela. In filling some 6,000 orders for equipment each year, the export division deals with about 8,000 different manufacturers.

Ideco, Inc., one of the Dresser Industries, now has sales representatives in 19 countries, in addition to licensed manufacturers of its drilling equipment in Austria, England, France, and Italy.

Continental-Emsco Co. has sales representation or supply points in 30 foreign nations. Within the past year, the company has added agents for Japan, Formosa, the Philippines, Yugoslavia, Egypt, Libya, Saudi Arabia, and Iran.

The oil equipment men are finding that the ability to sell on credit is becoming vital. "More and more," says an equipment firm's export chief, "we are having to get into financing with our own money. I'd go so far as to say that the outfit most successful at financing deals will be the most successful in making a profit overseas."

Agreeing with this is the supply company man who says, "It's going to be almost impossible to sell large amounts of equipment to the government oil agencies in South American countries without credit terms. We've got competition from European companies that receive financial support from their governments in the form of credits, and sales assistance from the embassy and government trade officials. We may have to get the same help from our government as the German equipment companies are getting from theirs."

Potential new big sales by U.S. equipment companies to government oil agencies in Mexico, Argentina, Brazil, and other South American nations hinge on the arrangement of satisfactory credit terms. There is a chance that the Export-Import Bank may be allowed to extend lines of credit to U.S. firms. This would allow the latter to offer easier terms to nationalized oil companies in the Latin countries.

Petroleum Week's survey shows that most equipment people are following a cautious credit policy.

The equipment and supply companies and refinery service firms report these policies: 18 are offering to help their customers finance equipment purchases or plant construction; 23 are not; and 13 are offering credit help only "in unusual circumstances."

Says another, "Our salesmen's goal is to sell our machinery, not our credit. But we carry some drilling contractors overseas until they generate enough income to pay for their rigs in soft currency. Or we go to the bank and say, 'We know this fellow is a good risk.'"

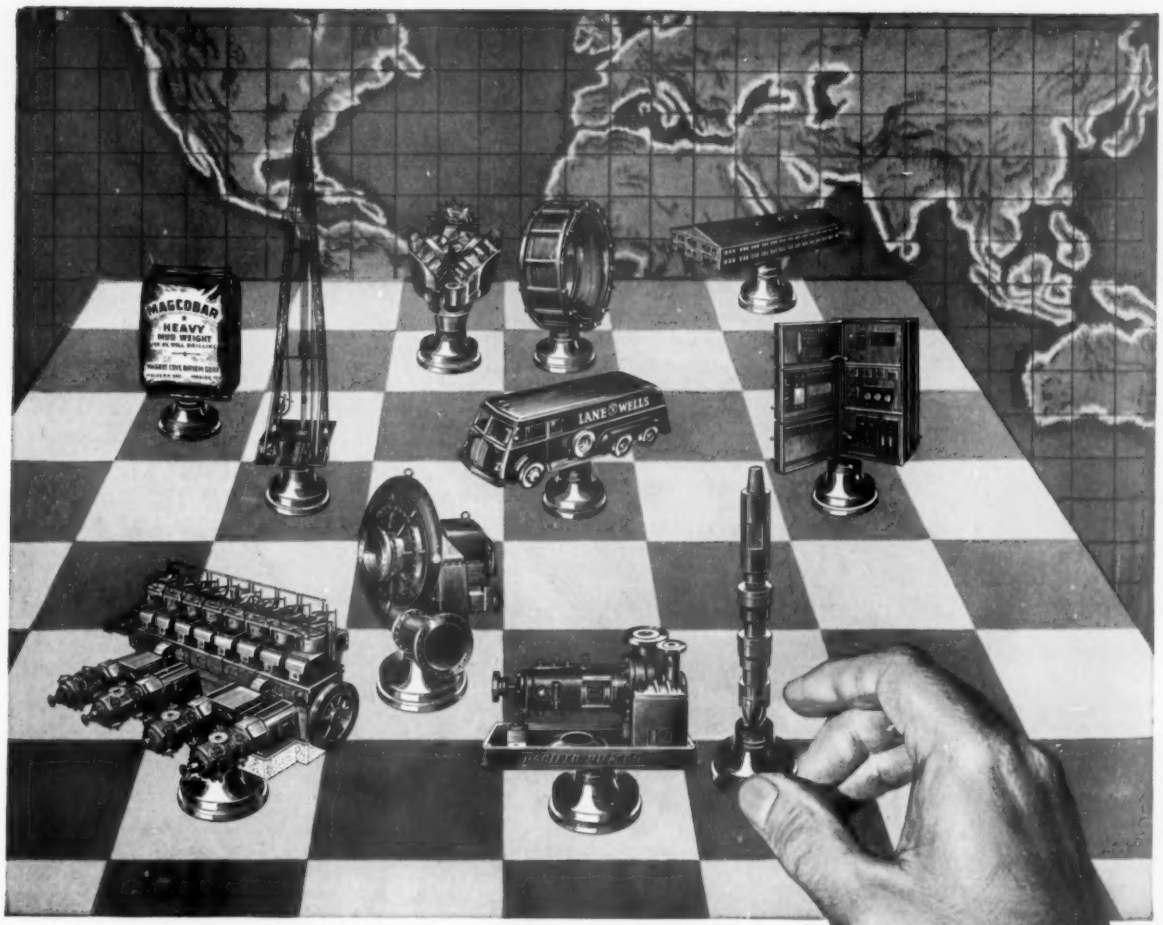
Some firms are stressing rental-purchase agreements and long-term payments in overseas sales.

Practically all the equipment going to overseas locations is new. Chief exceptions: Idle contractors' rigs from the U.S. Ten oil companies in the survey say they are shipping out only new equipment. And a mere 5 out of 44 equipment companies say they are supplying oil men with any used gear. "Why take a chance?" asks a drilling equipment sales manager. "With used equipment you wind up with 85% of the cost and no warranty or reliability."

continued ▸

"Supply companies will have to get into the supply business overseas with both feet . . ."

. . . A. R. MEYER, vice-president and Export Division manager, National Supply Co. (reviewing operations with C. B. Carter, left, Export Division sales manager; and N. B. Biggerstaff, Latin America sales manager).



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XR58-3

How oil companies handle purchasing for overseas

Questions:	Answers by 11 oil companies: Yes	No
Does your company have an overseas office(s) that purchases equipment and supplies?	7	4
Are overseas offices or field managers allowed to buy equipment or supplies without home-office approval?	10	1
Do any of your company's purchasing officers buy equipment for overseas use without a requisition from the field?	2	9
Do you have a "buy locally" policy — meaning that you buy from local manufacturers and distributors, rather than from U.S. firms, whenever the terms are equally advantageous?	10	1
Do you ever pay a premium for equipment made overseas as part of such a "buy locally" policy?	5	6

Industry Gives Costs a Closer Look

Oil companies take advantage of a "slow year" to trim inventories, streamline purchasing methods, and reduce air-freight shipments.

As part of the "economy drives" of a recession year, 6 of the 12 oil companies that stock equipment overseas say they have reduced inventories this year. Like the equipment firms, they seem to have inventories well in hand. A full 24 out of 31 of the latter report that their inventories are "about right." Seven others term the level "larger than desirable." No company says it is understocked.

"In a sense," says a representative of a big supply firm, "inventories are always larger than desirable. You could establish a beautiful, low inventory position—and lose a lot of business. In Venezuela we don't average a turnover of one a year, as against two or three in the U.S. But many of those items in Venezuela you have to carry for the protection of the customer. He may never use them, but you have to carry them to make other sales.

Shaving of inventory emerges from the survey as the most common means used by oil companies to cut costs overseas. "Competitive bids" are mentioned by several. Other economy methods listed:

- Organization of an export shipping department. Survey of overseas supplies.
- Improved scheduling of purchases. Volume shipping.
- Closer comparison of materials. Curtailing field authority.
- Consolidating purchases for economical packaging.
- Personnel reduction.

Most oil companies active abroad are purchasing six months ahead of delivery, as a bare minimum. Only two firms mention shorter periods. Most are in the six-to-nine-month bracket. Two, with very remote operations, are doing some of their purchasing 18 months ahead of time.

Oil-company use of air freight has apparently declined this year, with ship transport widening its lead. The margin in favor of steamship lines is roughly 100 to 1, on a cost basis. The 100-to-1 ratio is given by four oil companies. One company has the decimal points figured: 99.3 to 0.7 in favor of ocean freight. Another company gives only 49 to 1. Asiatic Petroleum Corp. finds its use of export air freight has dropped from about 9% over the years 1955 through 1957 to roughly 4% in 1958. Explains a spokesman, "There's less urgency this year."

Several equipment men report a lack of enthusiasm on the part of oil men and drilling contractors for lighter equipment overseas, despite the savings in transportation such equipment would provide. Sample comment:

- "There's no great disposition to lighten the equipment, only to move it better. Companies that are professionals in the field think rugged rigs are essential overseas. The cost of getting the rigs in makes it imperative that they hold up."
- "Most overseas operators try to use standard equipment. They don't want untried stuff."

"Local purchasing," in the country where an oil company does business, continues to be emphasized.

"We will buy," says a major-company vice-president, "wherever the quality and price offer the best deal. We prefer, however, to buy what we can inside the local country."

Seven of the 14 oil companies commenting on this

continued ▸

236 TRUCKLOADS of drilling equipment from one ship traveled 400 miles to Oasis Oil Co. camp in Libya this spring.

TRANSOCEAN TOW of Aramco drilling platform from Mississippi River (above) to Mideast typifies foreign transport troubles.

point say they sometimes pay higher prices in order to patronize local manufacturers abroad.

Business Climate 'Variable'

What's happening to the business atmosphere for the American oil and equipment man in foreign lands? In general, it's continuing to be fairly good. About the same number of industry men say it's getting better as say it's getting worse. A lot depends on the country under discussion.

In the survey, 11 equipment and supply firms and refinery service companies rate the foreign "climate" as getting worse; 14 say it's getting better; and 13 say it is not changing noticeably.

Of the ten oil companies that rated the harmony of their business relationships in foreign countries and in the U.S., three think matters abroad are getting worse, while seven see little difference.

Most frequent reason given for a worsening of the business climate is nationalism and politics abroad. Seven equipment and supply firms mention this factor.

"My personal belief," runs a typical comment, "is that some of these nationals don't know what they're hollering about. They think the U.S. public is a lot of S.O.B.'s for not loaning them more money."

Says another equipment man, "The British, Germans, and Dutch are about the only ones with whom we deal upon whose word and integrity one can depend."

Other reasons given for a poorer business climate are chiefly the currency and imports restrictions. One company points to the "low salaries of competing foreign technicians."

In the light of recent political disturbances in South America and the Middle East, a surprising number of U.S. industry men say they are encouraged by the welcome they are receiving abroad.

"I have been to many places in the past year," says a supply company manager, "and have been very well received. Foreign businessmen have been very cooperative in working out licensing. Many governments recognize the importance of developing their natural resources."

Concurring in this is the equipment man who says, "There is growing recognition of the need for American know-how. The business climate is improving."

Concludes a supply company veteran, "The outlook is encouraging. We are getting more people overseas. We are getting better known, and are becoming acquainted with foreign governments. We are following their rules.

"The trouble overseas is political. The business people are not making any enemies. We are confident of a successful future overseas."

"The business people are not making any enemies. We are confident of a successful future overseas."

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Two new air surveys in Libya, totaling 60,000 sq. mi., are now being added to the 165,000 sq. mi. already logged there by veteran AERO crews.

One survey, for Mobil Oil Company of Canada Ltd. and Oasis Oil Company of Libya, will be used for photogeological studies of their concessions. Air photos are made at 31,000 ft. from an AERO B-17. AERO photomosaics will later aid logistical planning.

The other survey, for Pan American International Oil Company, involves both photo coverage and airborne magnetometer studies to aid in determining basement depths and sedimentary structures. To offset turbulent air at low altitudes over the desert, the magnetometer flights are made with DC-3 fixed tail-cone magnetometer installation. Monitoring stations check for magnetic storms.

Both surveys are being conducted over remote desert areas —400 to 500 miles distant from air bases in Bengasi and Tripoli. It's the tough jobs like these that call for the experience and equipment of AERO—pioneer and leader in the field.

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Kuwait-Jap Pact Plays Down Integration

Neutral Zone Offshore concession much more specific and income-conscious than Saudi deal for same area.

The new Neutral Zone oil agreements with the Japanese make one point clear: For Kuwait, unlike Saudi Arabia, it is solely the prospect of cold, hard, U.S. dollar income that really counts—and not any dream of a far-flung integrated oil operation with uncertain economic return.

This prevailing attitude—markedly different from Saudi Arabia's—emerges strongly in a comparison of the actual texts of the Saudi-Japanese pact and the new Kuwait pact with the same company as released last week (PW—Jul.25'58,p45).

These differences are quite apart from the fact that Kuwait is to get 57% of the profits in its agreement with the Japanese firm, the Arabian Oil Co. Ltd., as against the 56% negotiated by the Saudis. The Saudis, may, however, renegotiate to the same level now.

Kuwait, to be sure, bypassed big cash bonus offers from Western oil companies to follow Saudi Arabia in granting its undivided half-interest in the Neutral Zone waters to the fledgling Japanese company.

But it has taken a more realistic position in dealing with an inexperienced firm with somewhat uncertain financial backing. Unlike Saudi Arabia, it specifies that:

- The company must make all payments to Kuwait entirely in U.S. dollars. (It can make payment to the Saudis partly in any other acceptable currency.)
- The company cannot claim force majeure for "any act by the Japanese government or failure on its part" that prevents the company from making any required payment to Kuwait.

The integrated operations required by the Saudis are distinctly de-emphasized in the Kuwait pact.

The Saudi contract specifically obligates the company to carry out all operations of an integrated oil enterprise—including production, refining, transportation, and marketing—as "an integrated entity."

The Kuwait pact, on the other hand, nowhere uses the word "integrated." It specifies only that "when the level of production permits, and when requested" by Kuwait, the company shall carry out all the other phases of the oil industry.

Kuwait, in fact, has made sure that any losses incurred in marketing will not cut into its assured income from exports of crude.

For accounting purposes, operations are divided into two phases, on which profits are separately calculated:

(1) Production and sale of crude, from which is derived what Kuwait calls the "Oil Profit," based on posted prices.

This profit is calculated by deducting specified allowable expenses and costs from the posted price of oil, after the posted price is adjusted by any discounts or selling charges agreed upon between the company and Kuwait. (The specific provisions for determining and applying "adjusted posted prices" are formal recognition of competitive market conditions that do not appear in the Saudi agreement.)

(2) Refining, transportation, and marketing operations, from which is derived what Kuwait calls the "Marketing Profit."

The division between "Oil Profit" and "Marketing Profit" does not exist in the Saudi agreement.

This division will give Kuwait at least 57% of the profits from crude exports, and a separately calculated 57% from marketing operations.

Losses in one phase do not affect the amounts payable on the other under this procedure, which was earlier described as "one of the attractive features" of the concession by Kuwait's London agency.

Unlike the Saudi pact, Kuwait's terms include a payment provision that will offset any decline in its income resulting from high production costs.

Kuwait's share of profits, payable in royalty, income tax, and make-up payments will actually rise above 57% if expenses are high.

Once commercial production is established, Kuwait will get whichever is the highest of the following:

(1) $2.5-million, the minimum annual royalty, or

(2) 57% of the "Oil Profit" from crude exports, or

(3) A sum equal to the 20% royalty (without deducting the minimum payment), plus 40% of the "Oil Profit." If production costs are high, this provision will carry Kuwait's profit share from crude exports well over 57%. It has no counterpart in the Saudi agreement, in which the government's share is set at a flat 56% of profits from the total integrated operations of the company.

The refining commitments, obligatory in the Saudi agreement, are left open in the Kuwait pact, with economics the determining factor.

Under Saudi terms, the Arabian Oil Co. must build a refinery within two years after production has averaged 30,000 b/d for 90 days. (This means total production of 60,000 b/d, since the obligation applies to an undivided half-interest.)

Kuwait requires the company only to "discuss" construction of a suitable plant at that stage. Factors in reaching a decision: the desirability of increasing Kuwait's profit share; and the economics of a refinery to the company.

Under the Saudi pact, when production averages 75,000 b/d (i.e. a total 150,000 b/d) for 90 days, the company must build refining capacity within two years to handle 30% of the production.

On Kuwait's part, this again applies only "if required" by the Sheikh.

There are other differences in the Kuwait contract, a much more specific document than the Saudi pact.

- Kuwait gets a $5-million bonus, payable when production reaches 50,000 b/d (i.e. a total of 100,000 b/d).
- Kuwait also gets a Research Institute, which Arabian Oil Co. must establish, staff, and maintain after its production passes 30,000 b/d (i.e. a total of 60,000 b/d). Its costs are not tax deductible.
- Kuwait specifies that area relinquishments must be made in sections of sufficient size and convenient shape to permit oil operations to be carried out. (The Saudis make no specifications.)

Saudi Arabia, on the other hand, is much more interested in developing tanker operations. It specifies that Arabian Oil Co. must give "first preference" to Saudi-owned tankers, if its own are insufficient, provided only that the rates and terms are "substantially" the same as those for similar tankers. Kuwait says only that the company is to give "favorable consideration" to use of suitable Kuwaiti-owned tankers, so far as practicable, and at current market rates.

Argentine Oil Deals Top $1-Billion

BUENOS AIRES—Fact, for once, made rumor pale. President Frondizi announced last week that a staggering $1-billion worth of oil aid has been offered Argentina by Western companies—largely U.S.

Eight different oil deals have been signed, including five contracts and three "letters of intent," Frondizi told a nationwide radio-television audience. All but two are with U.S. firms or groups—including both oil companies and investment firms.

In addition, at the last minute, the U.S.S.R. submitted a barter offer for $100-million worth of oil equipment.

Altogether, the deals could make Argentina self-sufficient in oil within three years, and an oil exporter after that, Frondizi added.

"In only 85 days of constitutional government, we have been able to create legal security and confidence abroad to cut the chain that has been choking us," Frondizi said.

The announcement ended weeks of uncertainty on whether the hard-working new president could find a way to bring desperately needed foreign capital into Argentine oil development. Until the last moment, it had appeared that all negotiations were foundering on the country's ultranationalistic oil attitudes.

No oil rights are granted in any of the eight agreements. Basically all provide for financing drilling and development against cash payments for oil produced and delivered to Yacimientos Petroliferos Fiscales, the state oil entity.

The deals are complicated, and particulars on just how they'll work have not yet been fully disclosed. What distinguishes them from drilling contracts is that capital risk is involved.

Here are the announced details of the five contracts already signed:

(1) A $60-million deal with Indiana Standard's Pan American International Oil Co. for drilling up to 400 wells in a 15-year period, with an option for five more years. Payment during the first five years will be $10 per cubic meter produced, payable 60% in dollars, 40% in pesos.

(2) A $100-million contract with Carl M. Loeb, Rhoades & Co., New York investment banking firm, to finance development drilling.

The company said it will receive 50% of the delivered value of the oil produced until its over-all costs are repaid. In addition, it will receive a profit for the life of the agreement of 15% to 20% of the value of the oil, diminishing as the volume increases. Compensation will be in dollars.

(3) A $2½-million to $10-million contract with Lane-Wells Co., one of the Dresser Industries, for oil-well servicing.

(4) A $1½-million contract with Astra S.A., a small private Argentine oil company, for drilling 30 wells.

(5) A huge $700-million package deal with a group headed by Floyd Odlum's Atlas Corp., an investment trust. This includes loans equipment, development drilling, pipeline construction, and interim crude imports.

Participating are Williams Bros. Co., of Tulsa; Ferrostaal A.G., a major West German steel producer; and three Atlas Corp. affiliates—Petro Atlas Inc., Mid-Continent Exploration Co., and Hidden Splendor Mining Co.

The contract announced by Frondizi was described by an Atlas Corp. spokesman in New York as simply an "agreement to agree."

Final contracts, yet to be worked out, may thus cover all or any of the following proposed expenditures:

- $240-million for drilling some 23-million ft. in about 4,000 development wells in the Comodoro Rivadavia field, within six years. This would be repayable in pesos (and possibly credits), with no relation to the volume of oil produced.
- $50-million worth of oil equipment, to be supplied to YPF within three years, payable 20% in pesos, and 30% in dollars over three years starting after the third year, with 4.75% interest. (Terms for the other 50% were not disclosed.)
- $5-million for installing an oil equipment plant.
- $130-million for a gas line from Comodoro Rivadavia to Buenos Aires, if and when required.
- Loans up to $100-million for oil imports, and a five-year $30-million loan to the Argentine Central Bank for YPF financing.

The rest of Argentina's billion-dollar oil offers were submitted in three "letters of intent":

(1) A $100-million offer from Conorada Petroleum Corp. (Continental, Ohio Oil, and Amerada) for drilling and production.

(2) A $35-million offer from Petrofina S.A., of Belgium, for drilling 200 wells over ten years.

(3) An offer from a U.S. firm called Sea Drilling Co. for submarine drilling in the Comodoro Rivadavia area for $10 per cubic meter of oil delivered to YPF, payable in dollars and pesos.

Venezuela Unions Slate Oil Talks

CARACAS—Oil questions are due for discussion at a national convention called for August 6 by 40 newly reorganized unions, following the strike that shut down Venezuela's oil industry for seven hours last week.

The convention will be attended by 300 delegates representing some 40,000 oil workers, as well as by delegates from non-oil unions.

The organizing committee of unionists—affiliated with all parties, including the Communists—originally called the convention for July 31 but postponed it last week, due to some continuing political unrest, though the situation appeared to be stabilizing.

The convention's agenda includes labor questions as well as national oil policy and agrarian reform.

Union leaders have indicated willingness to abide by the present three-year oil industry contracts signed in September, 1956, by government-controlled unions.

But some contract reinterpretation is expected, particularly of terms involving drilling contractors. The unions claim the contractors are violating agreements, and want to make the oil companies responsible for their contract compliance.

The oil workers' walk out last week was part of a nationwide general strike supporting the government junta. It was also a show of oilworker union strength.

It was orderly, except in some parts of eastern Venezuela, where eager strikers quit ahead of schedule and set up road blocks. Some oil tanks overflowed around El Tigre when personnel shutting down wells were forced off the job.

The government junta, which had been threatened by a military coup, now appears stronger than ever after a demonstration of broad civilian support ranging from labor and political parties to religious leaders and conservative business and professional groups.

The strike last week was the first since the Perez Jimenez regime crushed an oil strike in May, 1950, broke up the free labor movement, and outlawed the Communist party.

What's New
AROUND THE WORLD

Italians Get First New Morocco Grant

The first oil grant under Morocco's new 50-50 oil law has been tabbed for Italy's state-owned Agip Mineraria, under a joint venture with the government.

The pact, reported from Rabat last week, is comparable to the one Agip concluded with Iran last year.

Under the joint-venture agreement, Agip will bear the entire exploratory risk on a concession covering the 10,000-sq. mi. Tarfaya region (formerly Morocco's southern protectorate) and its coastal waters. Costs will be reimbursed, after oil production is established, at the rate of 10¢ per bbl. of crude produced.

As in Iran, a joint government-Italian company will take over development, with each partner putting up 50% of the capital.

The agreement was described as conforming to the terms laid down in the new law, which requires a minimum exploration investment of $4½-million in the first four years and $1-million annually for the next eight years.

•

COSTA RICA—Gulf Oil Corp. has now acquired 50% interest in oil rights held by Union Oil Co. of California (PW—May9'58,p72). It may also take 50% interest in Union Oil's Guatemala and Panama acreage.

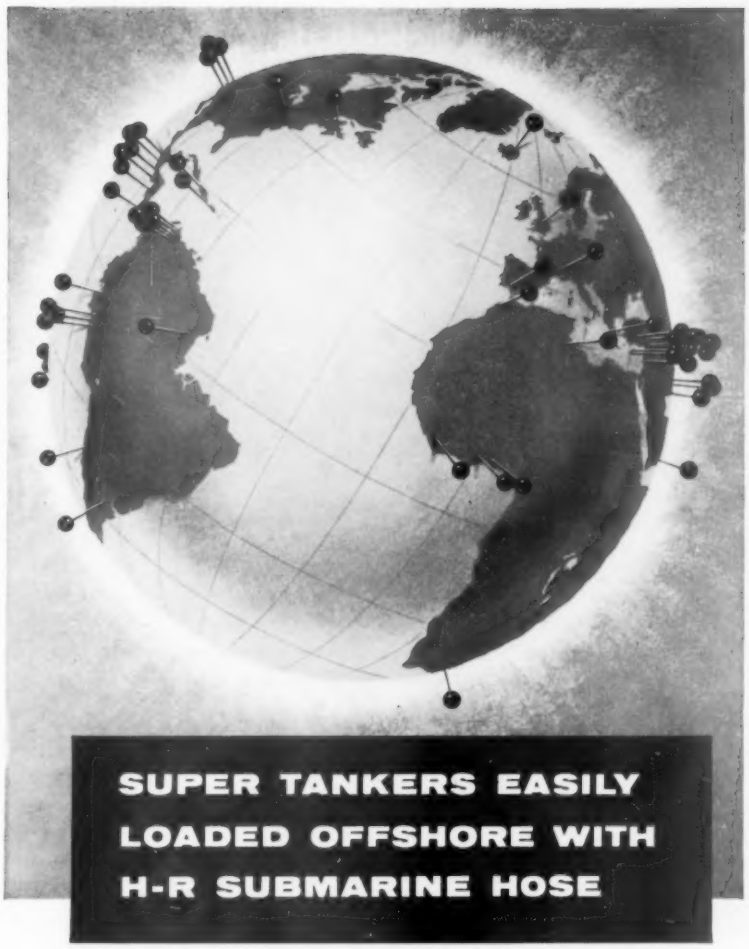
A Union Oil spokesman in San Jose said last week that the company plans to spend another $3½-million on exploration in Costa Rica, where it has spent $9-million in a search that has so far failed to establish commercial production.

Union Oil expects to resume drilling on new structures in Costa Rica next year.

•

BAHAMAS—A two-year exploration license covering much of Andros Island has been granted to Consolidated Cuban Petroleum Corp. In its latest move beyond Cuba.

The company expects to start surface work in 90 days on the grant, which covers about 1,500 sq. mi., including the southern ⅔ of the island and adjoining waters. A small producer in Cuba, the company recently acquired 16% stock interest in Bolivian American Oil Co., which now holds oil rights or applications on 2.4-million acres in Bolivia.



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H-R submarine hose resists both coral abrasion and rot, and has given over 10 years of continuous service in installations abroad. It is available in sizes up to and including 16" internal diameter. For information or service, contact your local H-R representative, or Hewitt-Robins, Stamford, Connecticut.

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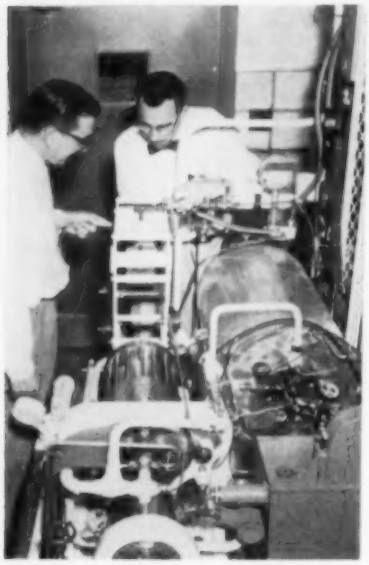
CONVEYOR BELTING AND IDLERS . . . POWER TRANSMISSION DRIVES
INDUSTRIAL HOSE . . . VIBRATING CONVEYORS, SCREENS & SHAKEOUTS

H-R Product Manufacturing Plants in Buffalo, N. Y. • Chicago, Ill. • King of Prussia, Pa. • Passaic, N. J. Amsterdam, Holland • Johannesburg, South Africa • London, England • Montreal, Canada • Paris, France



TWO NEW TOOLS for Esso Research, a rapid-compression machine (left) and an 8-car dynameter (right) assist as . . .

Esso Gets More Research 'Mileage'

Esso Research & Engineering Co. is meeting increased fuels competition by installing what it believes to be two research "firsts" for an oil company organization.

"As automotive engines become more complex, it is increasingly important and difficult to tailor fuels and lubricants to meet their over-all requirement," according to Dr. J. G. McNab, coordinator of petroleum products for Esso Research. "Two of our new research tools will enable us to carry out research more efficiently and economically."

A "rapid compression" machine, said to be the only one of its kind in U.S. industrial research, will assist Esso Research in the basic study of precombustion reactions of fuels.

According to Esso Research, only three other such machines exist in the world. The others are at Massachusetts Institute of Technology, Northwestern University, and a university in Germany.

Esso Research's machine was built in its own shops, based on an adaptation of the original M.I.T. model.

The machine is used to generate very rapid compression of fuel-air mixtures in a cylinder chamber.

Fuel-air mixtures are compressed to pressures as high as 400 to 500 psi within a few thousandths of a second. The air and fuel are mixed to the prescribed ratio in a tank alongside the rapid-compression machine. The mixture is forced into the compression chamber under pressure.

Compressed nitrogen is then used to force a piston into the compression chamber rapidly, causing an extremely fast rise of pressure in the chamber.

Two high-speed cameras are used to record the data and observe the movement of the piston connecting rod during the very rapid compression.

Both cameras run at the rate of 350 in. of film a second. One camera is located in the control room to record pressure variations shown on an oscilloscope. The second camera is located next to the rapid-compression machine.

A better understanding of precombustion reactions in engines, and perhaps new concepts in fuel technology, are the goals set for this machine.

On a long-range basis, according to the company, a better understanding of these precombustion reactions could result in better utilization of fuels in internal combustion engines.

An automated treadmill, the first large enough to handle as many as eight cars simultaneously, has been installed by Esso Research, to test experimental fuels and lubricants.

The main features of this treadmill, called an outdoor mileage accumulation dynamometer, are its ability to simulate accurately actual driving conditions, and its ability to handle eight cars at a time.

Tape recordings, made during actual on-the-road tests, are used to control the treadmill cycle of acceleration, braking, and stopping.

Many types of driving conditions can be simulated on the treadmill. Esso Research's daily "milk run" road test (101-mi. run through metropolitan New Jersey taking 3½ hours) has already been programmed onto the treadmill.

The installation can also be programmed to simulate uninterrupted highway driving, or a combination of both open road and city driving conditions.

Advantages occuring from the multi-car treadmill are accuracy, economy, and convenience.

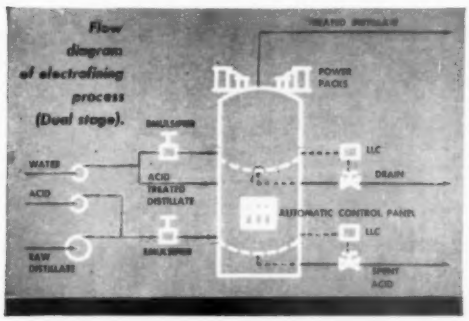
Test information is accurate and reproducible, allowing different fuels and lubricants to be compared under identical conditions—thanks to the magnetic tape programming.

Only one man is needed to run the tests on eight cars, releasing experienced test drivers for more specialized road testing problems.

And, it has enabled the company to make vapor lock and transmission tests at speeds up to or over 100 mph without leaving the Linden, N.J., research center.

PETRECO
ELECTROFINING REDUCES TOTAL ALKALI METALS TO .2 PPM

PRODUCT NOW PASSES "ATLANTIC CROSSING TEST" FOR QUALITY



Straight-run diesel fuel shipped via tanker to England for use in the London busses, was causing engine trouble due to sediment in the fuel. Exposure to air and agitation in the long tanker voyage from the Gulf Coast was responsible for the formation of sediment from materials of an acidic and unsaturated nature in the oil.

The refinery tried both caustic scrubbing and filtration, but was unable to get a properly low metal carry-over to warrant the installation of a full-sized conventional gravity treating plant.

With the Petreco Electrofiner, the oil is given a dilute caustic wash followed by a water wash. The naphthenic acids are virtually removed—and so are the potential polymers which would gradually produce sedimentation. The total alkali metals are now less than .2 ppm and oil now passes a special filtration test, the "Atlantic Crossing Test", required to meet the necessary quality standards.

Petreco Electrofining can be installed *for about 1/10th the cost of hydrotreating.*

If you have a treating problem, it will pay you to investigate Petreco Electrofining first!

WHERE IS PETRECO ELECTROFINING EQUIPMENT BEING USED TODAY? **Applicable to all distillate stocks, Petreco Electrofining is currently being used to treat such stocks as straight-run gasolines and naphthas, jet fuels, burning oils, diesel fuels, vacuum distillates, lube oils, gas oils, heavy cat naphthas, alkylates and many others.**

HOW IS IT BEING USED? **Petreco Electrofining is successfully removing mercaptans, naphthenic acids, sulfur, tarry acids, hydrogen sulfide, arsenic, lead, color bodies and gum formers.**

PETRECO

DT 58-3

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Specialized Petroleum Treating Processes and Equipment

DESALTING • DEHYDRATING • DISTILLATE TREATING • SWEETENING • LUBE OIL TREATING • SEDIMENT REMOVAL

What's New / IN PROCESSING

Tidewater Oil Co. claims a world's record for continuous operation of a fluid coker at its Delaware City (Del.) refinery.

The 42,000-b/d unit operated for 300 days on its first run. It processed 7-million bbl. of vacuum residuals during this period. The unit is now undergoing a routine turnaround.

•

Royalite Oil Co. Ltd. has placed a UOP Platforming unit on stream at its Kamloops (B.C.) refinery.

Capacity of the unit is 1,000 b/d. It processes a naphtha, derived from Trans Mountain Pipeline light blend stream crude, boiling in the range of 180F to 400F.

•

Humble Oil & Refining Co. has put a new fluid cat cracker on stream and has a solvent-hydrofining unit ready for operation.

Rated capacity for the cracker is 55,000 b/d. The hydrofining unit will treat 6,000 b/d of Varsol (a Humble solvent).

•

Imperial Oil Ltd. has awarded two more contracts as a part of the expansion program underway at its Calgary (Alta.) refinery.

A new laboratory building, to cost $200,000, will be built by Bennett & White Alberta Ltd. A new $65,000 storehouse building will be built by Poole Construction Co. Ltd., also of Alberta.

•

Du Pont has completed new production facilities for nylon at its Seaford (Del.) plant.

The nylon, Du Pont 420, was introduced a year ago for use in fortified cotton and rayon fabrics. A growing demand for its use with cotton necessitated the new Seaford facilities.

•

Hancock Oil Co. will redesign its refinery tankage to give more modern and efficient product handling.

In the $8-million to $10-million fire May 22-23, the Ultraformer escaped serious injury. The TCC unit is only about 30% damaged. All badly damaged major process machinery and equipment have been removed by C. F. Braun & Co. for inspection.

•

American Gilsonite Co.'s refinery at Fruita, Colo., is back on stream after a ten-day forced shutdown.

Failure of a fractionation column forced the refinery, the only plant in the U.S. using gilsonite to make petroleum products, to cease operations until repairs could be made. During the offstream period, the company's reserve of 10,000 bbl. of gasoline was depleted.

•

A Hydrofiner and sulfuric acid recovery plant will be built near Venice, Italy, at the Porto Marghera refinery jointly owned by British Petroleum and Azienda Generale Italiana Petroli.

The Hydrofiner will desulfurize 6,500 b/d of gas oil. It is scheduled for completion before the end of 1959.

THOMPSON UNITIZED VACUUM TANKS

- TANK CLEANING
- MUD MOVING
- SUMP AND PIT DRAINING

Capacities from 20-100 bbls; skid, truck, semi or trailer mounted.

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FAST REFINERY CONSTRUCTION
demands the RIGHT combination . . . .

The ingredients are well known; but the proper proportions and blending are what make the difference. To meet today's requirements for higher-octane fuels and a greater range of petrochemicals, you not only must have the assurance of fast construction, but the knowledge your plant will enable you to attain and maintain a competitive position. Treco gives you that assurance.

Treco would like to talk with you prior to the planning stage. This could save you both time and money later.

....talk with the TRECO man.....

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The REFINERY ENGINEERING Company

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DEPT/Marketing

Will Others Try the Blending Pump?

A sample of behind-the-scenes speculation:

"It would cost too much to switch now, after installing three grades at considerable expense."

"Adoption of the blending pump is more likely in two-grade markets, such as Canada or the West Coast."

"Present pumps are adequate—even if we move to turbine fuels."

"Some independents might move to a blending pump."

"We can't stay at two grades, but we're not sure we want a blending pump."

"We're delighted that Imperial is testing the pump in Canada."

"Future fuels will be no-octane types. You won't need a blending pump."

"If sales level off, we'd certainly consider using it."

An unanswered question is in the air again: Is blending-at-the-station the way to sell gasoline? This week—as the pump used by Sun becomes available to any buyer—marketers are listening for a "yes" or a "no."

In the past year and a half, marketers have watched with interest as Sun Oil Co. introduced its revolutionary "custom blending" gasoline pumps (PW—Feb.24'56,p11) to 21 states and eastern Canada. This month, Sun completed its $10.3-million switch (PW—Jul.11'58,p86).

Sunoco customers now choose from six grades of fuel, each a different blend of gasoline and 105-plus "octane concentrate" pumped from separate underground tanks at the station.

The blending pump, which can dispense as many as nine different grades of gasoline, was manufactured for Sun by Wayne Pump Co., Div. of Symington Wayne Corp. The Sun-Wayne agreement was that the pump could be licensed to other marketers as soon as Sun completed its conversion program.

This week Wayne announced that it was ready to license the pump. A PETROLEUM WEEK nationwide spot check found most marketers still unwilling to give an unqualified "yes" or "no" to blending pumps.

The question reopens the whole multigrade issue. As always, company plans are closely guarded competitive "secrets."

One major company, refusing to discuss blending pumps at all, says that if it does or it does not intend to use a blending pump, it won't let competition know in advance.

Most marketers feel that the multigrade question is still wide open, and you can't talk about blending pumps without getting involved in the economics of two grades versus three grades. Several companies in the U.S. are testing the blending pump, according to Wayne, but it won't say which companies. There are no indications yet that anyone is ready to buy.

One sign of possible interest: test installations of blending pumps, selling nine grades, in Toronto.

Canadian marketers have shown active interest in the blending pump, but don't seem to feel that there's an urgent need to switch from two grades right away, at least not for the rest of this year.

Imperial Oil has installed blending pumps at two high-gallonage stations in Toronto for experimental purposes. At another Toronto station it is testing customer reaction to a third-grade super premium.

British American Oil reportedly is installing "a multiple-grade pump" at one Toronto station on a test basis.

Imperial's nine-grade pumps offer a spread in octane rating of a little more than ten numbers. At its three-grade station, Imperial is selling a super-premium at 52¢ a gal., or 5¢ above premium. Both experiments are aimed at stocking up some knowhow so that Imperial can move fast, should conditions warrant a change.

Imperial expects that a switch to custom blending would be so costly, that if the company did go in that direction, it would be a gradual change, with stations in some areas sticking to two grades.

One of Imperial's competitors says, "If I had to pick anyone in the Canadian industry to play with the blending pump, I'd pick Imperial. They're best-equipped to prove whether or not the thing has any merit."

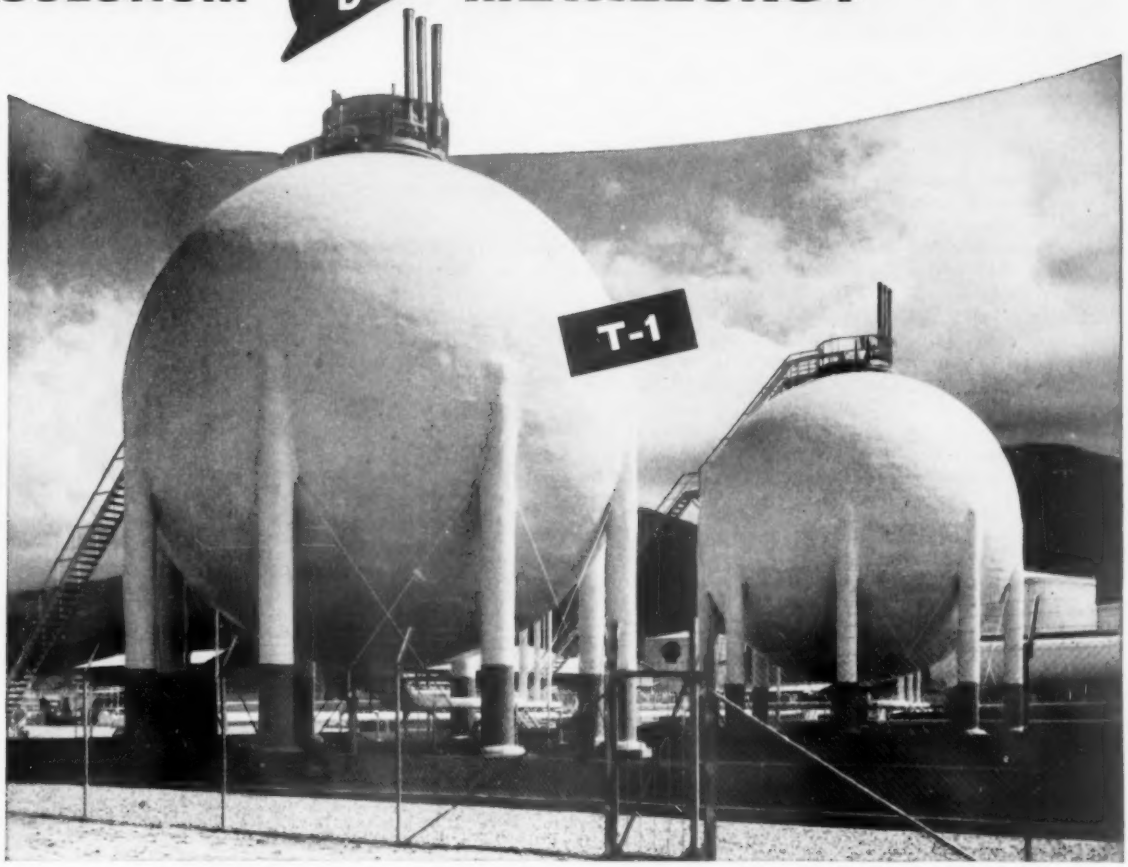
For the most part, Canadian marketers are sitting on the fence, biding their time, but getting ready to go along with any trend.

They've been busy fighting off price wars, eyeing auto trends, and "watching Sun stations like hawks."

Says a sales official for fast-growing BP Canada, "In building our new stations, we've made them flexible

PROBLEM: More Propane for Caracas

SOLUTION: METALLURGY



Why 2 HORTONSPHERES® do the work of 20 Tanks

Increased usage of propane in Caracas made it necessary for Compania Shell de Venezuela Ltd. to either (1) add to the company's already crowded bulk storage facilities at *Catia La Mar* or (2) place another tanker in service.

Thanks to CB&I *craftsmanship in steel*, Shell was able to solve its problem without additional shipping expense; and without adding more real estate.

Two 6,900-barrel capacity Hortonspheres, designed by CB&I for 235 lbs. working pressure, were fabricated at our Greenville plant of T-1 steel. The strong alloy made it possible for the two high pressure vessels to store as much propane as 20 smaller, mild steel vessels.

CB&I's practiced knowledge and extensive facilities for designing, fabricating and erecting structures of modern metals made these savings possible. The most complete metallurgical testing facilities, which include X-ray and stress relieving services in shop and field, have made the experienced capabilities of CB&I *in demand* . . . all over the world.

Write our nearest office for details. Ask for the CB&I Bulletin *Special Plate Structures.*

SPECIFICATIONS

2 HORTONSPHERES—
Propane Storage

Compania Shell de Venezuela Ltd.

Capacity: 6,900-bbl. each

Pressure: 235 lbs. per sq. inch

Steel: T-1

Diam: 42-ft.

METALLURGICAL CONTROLS

Joint Efficiency—95%

Stress relieved in field

X-rayed 100% in field

Hydrostatic test: 354 lbs. sq. in. (at top of vessel)

Design: In accordance with ASME Code Case #1204-3

Designed, engineered, fabricated by CB&I and erected by our subsidiary CB&I, Ltd.

Chicago Bridge & Iron Company

Atlanta • Birmingham • Boston • Chicago • Cleveland • Detroit • Houston • Kansas City (Mo.)
New Orleans • New York • Philadelphia • Pittsburgh • Salt Lake City
San Francisco • Seattle • South Pasadena • Tulsa
Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY,
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Chicago Bridge Limited, London; Sociedade Chibridge de Construcoes Ltda., Rio de Janeiro

P74CB

enough to convert to custom blending."

On the other hand, few marketers in Canada feel that they can stay right where they are—marketing two grades only.

"We can't stay at two grades," comments one marketer, "but we're not sure the blending pump is what we want."

West Coast marketers feel that they could swing to a third grade or multiple grades, if competition forces such a move. But that won't happen very soon, they feel.

Marketers on the West Coast are, for the time being at least, agreed on the two-grade concept of gasoline marketing. However, if a three-grade marketer (for example, Gulf or a Jersey Standard marketing affiliate) were to enter the market with super-premiums, they admit that a multi-grade pump would get serious consideration.

There's also speculation that some independents may switch to blending pumps.

Such guesses are strictly speculation, however, mainly based on what a few observers see as a "natural" for the blending pump. They reason that a small independent could more easily convert to a blending pump.

"Independents are a growing and aggressive group of marketers," comments one major company official. "They just might take the lead in this."

Another major company official suggests a different marketing situation conducive to blending pump operations: "The blending pump might be both expedient and economic for the marketer who has alkylate to spare, if he doesn't sell much aviation fuel."

Three-grade marketers are generally cool to the idea of blending pumps, now or later.

These companies are strong in their contentions that three grades can satisfy all the cars on the road. And after big expenditures to make the third-grade move, they're not likely to be interested in a blending pump for quite a while, to say the least.

"If the octane spread widens," says one major company executive, "we might have to add a fourth pump, but I doubt it. In fact we expect octane requirements to narrow eventually. Then we'll use our third pump for turbine fuels, if necessary."

The high cost of changing to a blending-pump operation is a big roadblock to most companies.

One company says such a switch at its outlets would be very costly and estimates that it would take $24-million to install blending pumps at its 4,000 stations. This doesn't count the added expense of refining a heavily alkylate product, used to make the "octane concentrate."

On the other hand, a two-grade marketer who estimates his cost of adding a third grade at $8-million, says that a blending pump would be "the answer for the two-grade marketer who decides to go to more grades."

Perhaps even more costly for some would be a switch in "marketing philosophy."

"We'd have to change our whole method of marketing," says one major marketer, "and that's no simple matter."

And a Midwest marketer predicts, "I don't think there'll be a trend to blending pumps. Other marketers will resist playing 'me too' to Sun."

Uncertainty about automotive trends and future fuel requirements is delaying a decision for many. What Detroit does will be a determining factor.

On the one hand, marketers are hearing predictions of higher compression ratios and on the other, predictions of a big economy trend, spurred on by imported autos. No one knows how wide the octane spread will be. One company admits that it could do an about-face in favor of a blending pump, depending on auto trends.

Another marketer thinks it would make more sense to introduce a new super-low octane, with a low price to go with it.

Still another company makes this prediction: "Future engines, requiring a relatively simple fuel such as kerosine or diesel oil, will be the end of the blending pump."

The pump's manufacturer maintains that blending pumps will be especially suited to the age of turbine fuels.

Wayne's sales force is pitching part of its effort on the idea that the blending pump "prepares the way for engines to use a wide range of fuels." The blending pump could dispense various mixtures of gasoline and kerosine for different cars, much as it delivers different octane blends, they say.

Most marketers feel, however, that turbine fuels are too far in the future to evaluate the blending pump in relation to them.

Many marketers are leaving the door open till they have more chance to study Sun's custom-blending venture. They want to see if Sun sells more gasoline.

What's New
IN MARKETING

Several more oil companies are experimenting with aluminum motor oil cans. Continental Can Co. is supplying the quart-size cans at prices comparable to tinplated cans.

Socony Mobil says that it will order some aluminum quart-size cans from Continental. American Petrofina, D-X Sunray, Kendall Refining, and Quaker State Refining are taking delivery of enough cans to run sales tests.

Esso Standard pioneered the use of aluminum lube cans in the U.S. (PW—Sep.27'58,p57).

•

Sun Oil Co. has appealed to the Federal Trade Commission to overrule a hearing examiner's decision that the company engaged in price discrimination in the Jacksonville (Fla.) area in 1955.

The major points in Sun's appeal are that FTC counsel failed to prove price discrimination and that the examiner's cease-and-desist order is "unwarrantedly broad and punitive," since it relates to all of Sun's many products, although the case concerned involves gasoline only.

•

Standard Oil Co. (Ind.) is planning to build a new products distribution terminal northwest of Chicago. The planned facilities include storage for gasoline, fuel oil, and jet fuels.

The company will also build a 23-mi. underground pipeline to bring products to the new terminal. The new pipeline will connect with another products line that serves Soind's main Chicago terminal.

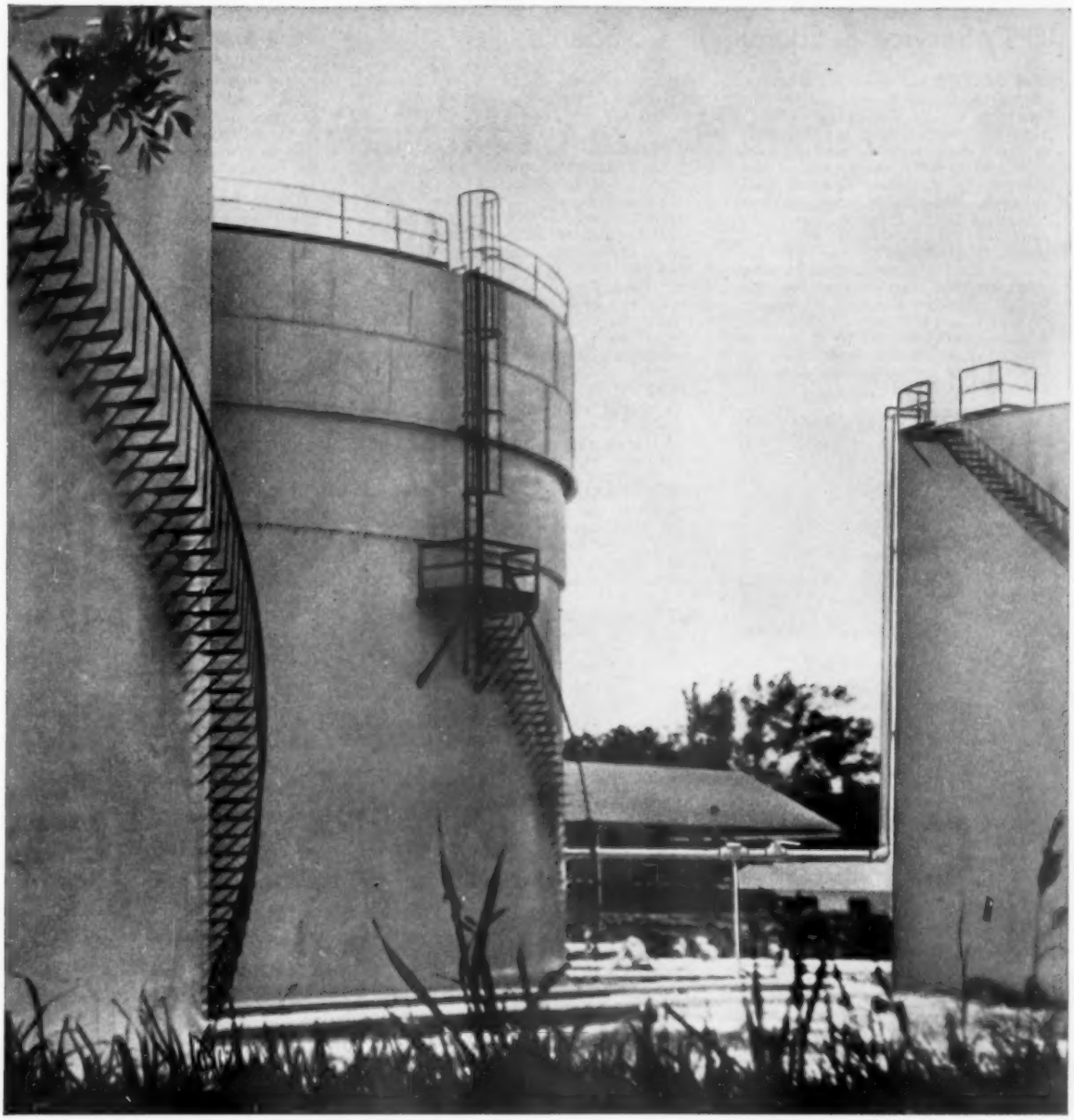
•

Service station sales in 1957, nationwide, were almost 9.7% above 1956, according to a report from the Census Bureau. Although domestic gasoline demand rose only 1.5%, sales of all commodities at service stations climbed to $15,070,000,000 last year from $13,738,000,000 in 1956. This is an increase of over $1.3-billion.

•

Fuel oil consumption by power plants for the year ending May 31 dropped, but gas usage rose compared to last year's figures, the Federal Power Commission reports.

Oil decreased 5.8% and coal 2%, while gas increased 5.2%.



MOTHER HEN TO TERMINAL PROFITS!

The Graver Expansion Roof® Tank, here nestled among adjacent manifolded cone roof tanks, is standing guard over precious vapors. This famous mother hen of the terminal virtually breathes profits back into the gasoline it protects by taking charge of the vapors generated in the other tanks and returning them to the product. With volatility and fire power maintained, distribution of a uniform product can always be assured. A Graver Expansion Roof Tank manifolded to a battery of quality Graver cone roof tanks represents the most profitable investment you can make in product terminal tankage. May we show you why?

GRAVER®

Building for the Future on a Century of Craftsmanship in Steels and Alloys

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Edge Moor, Delaware • Pittsburgh • Atlanta • Detroit • Chicago
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Los Angeles • Fontana, California • San Francisco

DEPT/Service & Equipment Companies

JACK SCOTT has been elected vice-president of sales and service for Crutcher-Rolfs-Cummings, Inc., Houston manufacturer and supplier of pipeline equipment. Scott has been sales and service manager. Other new officers at C-R-C are: **Kenneth Defenbaugh**, vice-president and general manager; **C. E. Hatcher**, vice-president; and **W. C. Cherry**, secretary-treasurer. Defenbaugh was previously associated with an Oklahoma City company that supplied equipment to C-R-C. Hatcher has been in charge of C-R-C internal pipe coating division, and has been active in sales in the United States and Canada. Cherry was formerly chief accountant and comptroller.

J. Scott

D. G. Willis

DAVID G. WILLIS was promoted to advertising manager of Magnet Cove Barium Corp., Houston. He succeeds **Ben A. Weil**, who has resigned. Willis will retain his former responsibilities as Magnet Cove's publications manager.

BENJAMIN J. FERNANDEZ has joined the marketing research department of Lago & Whitehead Advertising Agency, Wichita, Kan. He was formerly associated with O. A. Sutton Corp. and General Electric Co., in their market research organizations.

V. R. BURCH, former owner of Service Bulk Mud Co., recently integrated into the Baroid division of National Lead Co., Houston, has become area manager of the upper Texas Gulf Coast for Baroid. Other Service Bulk Mud employees and their new positions with Baroid are: **J. C. Tate**, store manager at Liberty, Tex.; **E. E. Leach**, warehouseman, Liberty; **J. L. Oaks**, maintenance foreman, Liberty; and **C. E. Leatherwood**, store manager at Beaumont.

V. R. Burch

J. B. Marshall

JOHN B. MARSHALL has been appointed Houston area sales representative for Enardo Mfg. Co. Marshall will cover East Texas, southern Louisiana, and southern Mississippi.

MITCHELL P. KARTALIA has been appointed general manager of the marketing division of Square D Co., manufacturer of electrical distribution and control equipment. He will be located at the executive offices at Detroit, and will report to **Gordon Patterson**, president. **Robert E. King** succeeds Kartalia as sales manager of the distribution equipment division, in Detroit. King has been distribution equipment headquarters sales supervisor since 1953.

ADOLPH H. WIDOWIT has joined the public relations staff of Universal Oil Products Co., Des Plaines, Ill. He was formerly advertising manager of Skil Corp., Chicago.

OSCAR BELL has become assistant division manager at Wichita, Kan., for Halliburton Oil Well Cementing Co. **H. P. Richardson** succeeds him as Halliburton's mud engineer at Amarillo, Tex.

GILBERT POLLARD has been promoted to sales manager of Milwhite Mud Sales Co., Houston. He has been a member of the sales department for the past five years. **Robert A. Jung** has been appointed manager of engineering for Milwhite. He was formerly engineering coordinator for the company.

G. Pollard

D. B. Carson

D. B. CARSON has been appointed to the new position of manager of the engineering department for Universal Oil Products Co., in Des Plaines, Ill. **L. O. Stine**, formerly assistant manager of pilot plants, replaces Carson as manager. The company's pilot plants develop new processes and adapt established processes to commercial use.

ARTHUR A. BATTS, JR., has been promoted to director of commercial research in a reorganization of marketing research, and advertising and sales promotion operations, of ALCO Products, Inc., at Schenectady. He was formerly director of advertising and marketing research. **A. Robert Jaeckel** was advanced to director of advertising and sales promotion. He has been manager of advertising and sales promotion since 1956.

RALPH L. HANEY was appointed manager of the Philadelphia district for the Allis-Chalmers Industries Group of Allis-Chalmers Mfg. Co. He replaces **C. W. Parker, Jr.**, recently named director of sales promotion for the group. **Charles E. Dandois** succeeds Haney as manager of the Allentown (Pa.) district. Dandois has been sales representative in the Allentown district since 1957.

JOHN L. BIBLE is president of the newly established Bible Geophysical Co., specializing in gravity and magnetic surveys, and interpretations, with headquarters in Houston. Bible resigned his positions as executive vice-president and director of Southern Geophysical Co., Houston, on July 8.

J. L. Bible

G. H. Weight

G. H. WEIGHT has been promoted to sales manager of the middle states for Babcock & Wilcox Co.'s tubular products division, with headquarters in Chicago. He succeeds **Leon B. Wohlgemuth**, who was recently named general sales manager for the division, with offices at Beaver Falls, Pa. Weight has been Southwest district sales manager in Houston since 1955. **J. H. Roach** was named district sales manager of the Tulsa office. He was formerly assistant district sales manager in Houston. **W. C. Mohrman** has become district sales manager of the Houston office. He has been a sales representative in the Tulsa district since 1951.

CUMMINS ENGINE CO. has announced plans for construction of an addition to its manufacturing plant at Columbus, Ind. The new facilities will include engine test cells, space for the assembly of marine engines, diesel-electric generating sets, export boxing areas and shipping docks, and an additional power house.

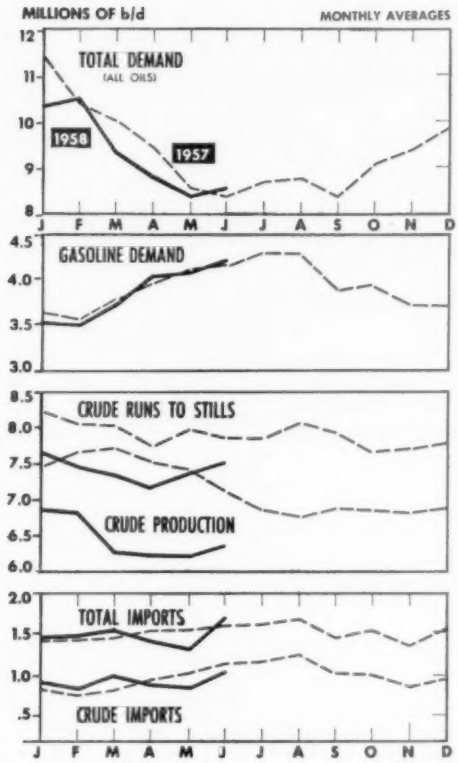
SAMUEL A. POND has been appointed to the newly created position of personnel director on the corporate staff of Chemetron Corp., in Chicago. For the past five and a half years, Pond has been director of industrial relations for the chemical divisions of Food Machinery & Chemical Corp. Pond will coordinate Chemetron's personnel activities in the divisions and subsidiaries.

GLEN "DOC" WARD is service manager of Viking Pump Co.'s newly established office in Oklahoma City. The office will serve Oklahoma, the Texas panhandle, and parts of New Mexico and Colorado.

BILL HORTON is the new sales and service representative in North Texas and Oklahoma for Harold Brown Co. He will have offices in Ardmore, Okla.

PETROLEUM WEEK'S

Fingertip Figures



TOTAL DEMAND

Latest 4-week average	8.678
Year ago	8.664

GASOLINE DEMAND

Latest 4-week average	4.351
Year ago	4.286

RUNS TO STILLS

Latest week	7.517
Previous week	7.450
Year ago	7.763

CRUDE PRODUCTION

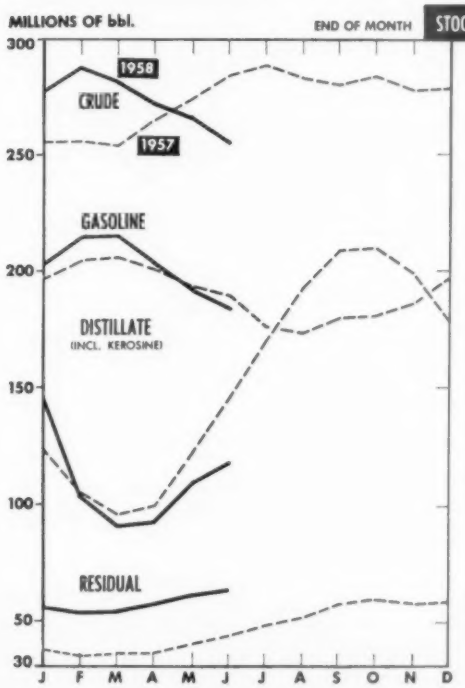
Latest week	6.536
Previous week	6.528
Year ago	6.922

TOTAL IMPORTS

Latest week	1.294
Previous week	1.343
Year ago	1.657

CRUDE IMPORTS

Latest week	.747
Previous week	.777
Year ago	1.297



STOCKS: CRUDE

Week ended 7-19	251.7
Previous week	252.8
Year ago	285.9

GASOLINE

Latest week	178.8
Previous week	179.7
Year ago	175.7

DISTILLATES

Latest week	140.9
Previous week	139.1
Year ago	164.4

RESIDUAL

Latest week	66.5
Previous week	67.2
Year ago	48.7

The industry has proved to itself during the past month that it can operate with lower crude inventories than most observers thought possible.

Since the end of June, crude inventories have been at or below what many had considered to the minimum efficient working levels. Yet while crude has been tight in some areas, no refiner has claimed any undue hardship.

Crude stocks east of the Rockies during the past two weeks have been below 210-million bbl., or more than 10-million bbl. below what some close followers of industry statistics figured was the absolute minimum working level.

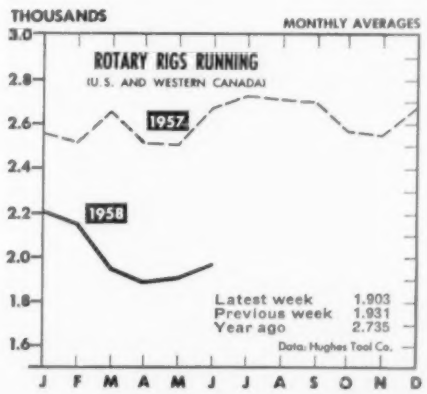
The tight supply of crude—both current production and inventories—tended to hold refinery throughput rates down in July to a little below the June level, but still product inventories have proved ample to meet demand.

It goes without saying that the tighter over-all supply of crude and products have been of benefit to the industry this year when demand is showing little or no gain over 1957.

The difference in current inventory patterns of crude and products between the West Coast where high stocks have plagued the industry for more than a year and the relatively tight position in the rest of the country should serve as a good example for all of the industry.

Gearing operating rates to normal seasonal fluctuations in demand—which can now be predicted with a high degree of accuracy—can prevent unnecessary accumulations of inventories.

Such scheduling of operations would permit the industry to use its ample "spare" producing, refining, and transportation capacity to an advantage when its needed.



The Market Trend

Some Don'ts Before You Sign a Contract

If you must hang your product supply contracts on an oil price reporting publication, here are some Dont's. You'll be making a longterm contract. You'll have to live with it.

Don't buy or sell products based on prices in one area if the oils are to be consumed in another. You can be whip-sawed too easily. Don't buy on Oklahoma gasoline prices if your market is Chicago. If you're selling No. 6 in Los Angeles, don't pin your faith on New York barge.

Don't buy one oil based on prices for another. The uneven nature of the markets will often put you at a disadvantage. For example, don't buy lube distillate (which is a crude) in Venezuela based on prices for South Texas pale oils. People have done it, and regretted it.

Don't buy at a differential off somebody's tank wagon prices. This is risky, too. Marketers sometimes give hidden discounts. If they do, you'll have a hard time proving it to your own source of supply.

Don't buy at a discount off a large seller's barge or cargo prices. Big marketers are sick and tired of being undercut this way. They're not above keeping their own customers competitive in a way that doesn't show up on an invoice. If they do that, you could be left high and dry.

Don't buy on thin-market prices, for you may wind up paying more than you might expect. There rarely is enough natural gasoline offered in the Mid-Continent to drive prices seriously down. The same is true of neutral oils in Texas, and bunker "C" fuel at the Gulf.

Don't insist on excessively complicated contracts. After all, your integrity counts more than your ability to outwit an adversary at contract writing. If you are willing to come up with product (or receive it) in times of stress, new deals and new business friends will come easy.

Don't contract on publications that don't have a full-time staff gathering price information. And read the publication of your preference for a few months before you sign anything. Get the feel of the publication. Learn which prices move slowly, which move rapidly.

Of course, if you wish to retain your decision-making powers on prices, then don't contract on a publication at all. Big oil buyers—particularly governments and industrials—will tell you that's easier said than done. But if you must make a contract on a trade paper, then buy the best publication you can find.

JP-5 Bids: The military received bids ranging down to 8.625¢, f.o.b. Port Arthur, for 22-million gal. of JP-5 fuel for winter loading. The low price is the same as the current cargo listing for kerosine.

Gasoline Hikes: Gasoline increases spread to virtually all of the Middle West last week. The latest move by Indiana Standard was a boost of 0.5¢ to 0.8¢ in parts of Missouri, Illinois, Indiana, and Michigan.

More Importers: Two independent West Coast refiners are soon to become importers of record. Rothschild Oil and Golden Eagle Refining Co. each will bring in a cargo of Venezuelan crude in August.

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All Prices as of July 28

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U.S. Gulf Coast, cargoes
- **Gasoline, 98 oct prem** ..... **12.25-13.25↑**
- **Gasoline, 92 oct reg** ..... **11-11↓**
- Kerosine 8.625-8.875
- **Heating oil, No. 2** ..... **8.375-9↓**
- **Gas oil, 48-52 d.i.** ..... **8.625-9.5↓**
- **Fuel oil, bunker "C"** ..... **$2.25-2.40↑**

Caribbean, cargoes
- Avgas, Grade 100/130 ..... .16
- Gasoline, 93 oct research prem 11.25
- Gasoline, 87 oct research reg 10.375
- Gasoline, 79 oct research 9.625
- Gasoline, 70-72 oct motor method 9.5
- Kerosine 8.875
- Heating oil, No. 2 ..... 8.375
- Gas oil, 48-52 d.i. 8.625
- Fuel oil, bunker "C" $2.25

New York Harbor, barges
- **Kerosine** ..... **9.65↑-9.9**
- **Heating oil, No. 2** ..... **9.15↑-9.4**
- Fuel oil, No. 6 ..... $2.57-2.65

Okla-Group 3, northern shpt, bulk
- Gasoline, 89 oct reg 12-12.75
- **Kerosine** ..... **9.75↑-10↑**
- Heating oil, No. 2 ..... 8.5-8.75
- Fuel oil, No. 6 ..... $1.30-1.45

Chicago, bulk
- **Gasoline, 91 oct reg** ..... **12.5-13↑**
- Heating oil, No. 2 ..... 9.5-10.3
- Fuel oil, No. 6 high sulfur 6.65-6.75

Los Angeles, rack
- Gasoline, 88 oct reg 11.5-13.6
- Diesel fuel, PS 200 ..... 10-11.25
- Light fuel, PS 300 ..... $3.05
- Heavy fuel, PS 400 ..... $2.50-2.70

Natural Gasoline, Grade 26-70
- FOB Group 3 ..... 4.5
- FOB Breckenridge, Tex. 4

LP-Gas
- Propane, Oklahoma (Group 3) 4-5

Pennsylvania Lubes
- Bright stock, 25 p.t. ..... .22
- 200 vis. neutral, 25 p.t. ..... .21

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent 95 v. i. 23-24
- Neutral, solvent, 200-210 vis. 19.5-20.5

Gulf Coast Lubes
- Bright stock, solvent, 95 v. i. ..... .24
- Neutral, solvent, 200 vis. 20.5

Eastern Hemisphere

Singapore (Pulau Bukom), cargoes
- Avgas, grade 100/130 ..... 17.25
- Gasoline, 79 oct research 10.375
- Kerosine 10.125
- Gas oil, 48 d. i. minimum ..... .10

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, 36.0-36.9 ..... 2.83-3.07
- North Dakota, 36.0-36.9 ..... 3.07
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9 ..... 3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9 ..... 2.92-3.22
  - West Texas, sweet, 36.0-36.9 ..... 3.00-3.07
  - West Texas, N. M., inter., 36.0-36.9 ..... 3.00
  - West Texas, N. M., sour, 32.0-32.9 ..... 2.86
  - East Texas, flat 3.25
  - Mirando, 28.0-28.9 ..... 3.31
- Illinois Basin, flat 3.00
- Pennsylvania Grade, Bradford dist., flat 3.90
- California, Signal Hill, 21.0-21.9 ..... 2.63-2.73†
- **North Louisiana-Arkansas, 36.0-36.9 ..... 2.82↓-3.02**
- Wyoming, sweet, 36.0-36.9 ..... 2.90-3.00
- Wyoming, sour, 32.0-32.9 ..... 2.71

Canada (flat prices, at the well)
- Acheson-Stony Plain (Alta.) 2.61
- Leduc-Woodbend (Alta.) 2.67
- Redwater (Alta.) 2.56
- Daly (Man.) 2.39
- Smiley (Sask.) 2.33

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 48.0-48.9, Tucupido 3.75
- San Joaquin, 41.0-41.9, Puerto la Cruz 3.34
- Oficina, 35.0-35.9, Puerto la Cruz 3.05
- Tia Juana, Medium, 26.0-26.9, Amuay 2.55
- Bachaquero, flat, Las Piedras 2.03-2.08
- Tarra, 38.0-38.9, San Lorenzo 3.08
- Lagunillas Heavy, flat, Cardon 2.25

†Differential per deg. of grav. varies.

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura 2.08
- Safaniya, 27.0-27.9, Ras Tanura 1.79
- Iran, 34.0-34.9, Bandar Mashur 2.04
- Iran, 34.0-34.9, Abadan 1.99
- Iraq, 35.0-35.9, Fao 1.98
- Kuwait, 31.0-31.9, Mina-al-Ahmadi 1.85
- Qatar, 41.0-41.9, Umm Said 2.23

Middle East, Eastern Mediterranean
- Arabian, 36.0-36.9, Sidon 2.49
- Iraq, 36.0-36.9, Tripoli, Banias 2.49

Far East, Cargoes, FOB Lutong, Sarawak
- Seria Light, 37-38 ..... 2.75

KEY TANKER RATES

(Last paid, per long ton, single voyage)

- **U.S. Gulf-New York, clean (USMC —15%) $2.42↑**
- **U.S. Gulf-New York, dirty (USMC —20%) $2.28↑**
- **NWI-USNH, dirty (USMC —40%) $1.62↑**
- NWI-UK/Cont., dirty ..... (Scale —57½%) 13/10
- **Persian Gulf-UK/Cont., dirty (Scale —35%) 36/1*↑**
- Persian Gulf-USNH, dirty ..... (USMC —60%) $5.08

**Sterling.*

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Jackson 3-6951

Boston 6 Edward A. Callahan, Jr.
350 Park Square Bldg.
Hubbard 2-7160

Chicago 11 W. F. Holbrook
520 North Michigan Avenue
Mohawk 4-5800

Cleveland 15 J. E. McArthur
1164 Illuminating Bldg.
55 Public Square
Superior 1-7000

Denver 2 J. W. Patten
Mile High Center, 1740 Broadway
Alpine 5-2981

Houston 25 D. O. Hanson
724 Prudential Bldg.
Jackson 6-1281

Los Angeles 17 Peter S. Carberry
1125 W. Sixth St.
Huntley 2-5450

New York 36 Edward A. Callahan, Jr.
Donald R. Thompson
500 Fifth Ave.
Oxford 5-5959

Philadelphia 3 W. A. Potter
6 Penn Center Plaza
Rittenhouse 6-0670

San Francisco 4 William C. Woolston
68 Post Street
Douglas 2-4600

Tulsa 3 J. A. Hartley
909 Enterprise Bldg.
522 South Boston
Gibson 7-5594

England, London E. C. 4 Herbert Lagler
McGraw-Hill Co., Ltd.
95 Farrington St.

DEPT/Personals

G. E. Wynn

T. E. Fitzgerald

GLENN E. WYNN and THOMAS E. FITZGERALD were elected senior vice-presidents of D-X Sunray Oil Co., Tulsa, subsidiary of Sunray Mid-Continent Oil Co. Wynn recently was named president of Suntide Refining Co., Corpus Christi, a Sunray Mid-Continent affiliate, and Fitzgerald has been executive vice-president for the same affiliate.

As senior vice-presidents in the D-X Sunray organization, Wynn and Fitzgerald will be available for special management assignments.

ROY S. GODBEY is manager of the newly formed commercial fleet sales department of Ashland Oil & Refining Co. Godbey will remain in Cincinnati, where he was formerly manager of Ashland's sales engineering division.

FRED McCOWN has been appointed head of T. T. Eason & Co., drilling division of Eason Oil Co., Oklahoma City. He was most recently associated with the petroleum department of First National City Bank of New York.

KENNETH A. KAUFMANN was named to the newly established position of supervisor of plastics market research and development for Amoco Chemicals Corp., Chicago. He was formerly manager of plastics technical service and the sales service laboratory for Spencer Chemical Co., Kansas City, Mo.

GLENN E. GUTHRIE has been appointed assistant treasurer and assistant manager of the treasurer's department for Creole Petroleum Corp., in Caracas. He was formerly with Standard Oil Co. (N.J.) as senior foreign exchange analyst for Latin America.

J. N. BIRON has been named senior vice-president of International Drilling Co., with headquarters in London. Other promotions at International include: **B. G. Frazier,** vice-president of engineering, Rome; **O. D. Blankenship,** assistant to **Monty R. Garrison,** managing director in the Rome office; **Rudd Martin,** controller, the Hague; and **J. A. Barnett,** assistant controller, with offices in Rome.

DR. H. J. HARRINGTON is chief of Tennessee Gas Transmission Co.'s new exploration study group, formed to handle special geologic studies for domestic and overseas departments, in Houston. Harrington has been on Tennessee Gas' overseas exploration staff for the past year. **J. W. Keith** and **Dr. Morad Malek-Aslani** are senior geologists for the studies group. Keith is transferring from Calgary, where he has been a senior geologist for the past three years. Malek-Aslani was previously employed by Texas Gulf Sulphur Co., Houston.

CHARLES JOHNSON has moved to Estevan, Sask. from Texas as general superintendent of Canadian operations for Stekoll Drilling Co. Johnson was formerly assistant superintendent for Stekoll's Corsicana Shallows operations in central Texas. **Jack Zimmell,** formerly assistant superintendent at Borger, Tex., has been appointed assistant superintendent of Canadian operations, at Estevan, and **W. B. Woodall,** formerly office manager at Corsicana, will become manager of the Estevan office.

NORMAN J. CLARK has formed an independent petroleum reservoir engineering and appraisal service organization in Dallas. He was formerly assistant manager of engineering and consulting for Core Laboratories, Inc., also in Dallas.

BOLTE J. NICKEL has been named traffic manager of Bell Oil & Gas Co., Tulsa. He became assistant traffic manager in 1943, and has been serving as acting traffic manager for the past several months.

JOHN D. STURTEVANT is controller for Humble Pipe Line Co., Houston. He replaces **S. G. Loy,** who has retired. Sturtevant has been assistant controller since 1957.

J. C. Woelfel

J. D. Sturtevant

CAPTAIN J. C. WOELFEL, U.S.N. (RET.) has become manager of the marine department of Richfield Oil Corp., Los Angeles. Woelfel will be in charge of Richfield's tanker operations and of marine terminal facilities at Long Beach harbor, in California. Woelfel joined Richfield in 1955, as assistant manager of marine operations, and in the same year he was appointed manager of tanker operations.

J. N. PERKINS has been named superintendent of the western division, at Midland, Tex., for Phillips Petroleum Co. He succeeds **M. R. Hayes,** who has transferred to the international department as Canadian manager. Perkins was formerly production superintendent of the Amarillo division, one of the three production divisions recently closed

for consolidation of production activities. **W. M. Schul,** formerly superintendent of the recently closed Denver division, has been named superintendent of the central division in Oklahoma City. He replaces **M. L. Atkinson,** who has transferred to the international department as the company's representative in Jordan. **F. W. Shelton,** formerly superintendent of the Wichita (Kan.) division, also recently closed, has been appointed special assistant to the manager of the central production area.

J. F. McCANNE was promoted to senior technologist in the technical department of Magnolia Petroleum Co.'s refinery at Beaumont, Tex. **A. B. Hiser,** formerly assistant chief process engineer in the lube oils process control section, succeeds him as chief process engineer in that section. In his new assignment, McCanne will be responsible for studies relating to the processing of butanes, propanes, gasolines, and other light products.

J. B. DUVAL and **MANSFIELD TWEEDY** have become directors of Shelton-Warren Oil Co., Roswell, N.M. Duval is vice-president of Shelton-Warren's marketing division, and Tweedy is the founder of Tweedy Oil Co., recently acquired by Shelton-Warren.

F. W. GIPSON has been promoted to superintendent of Continental Oil Co.'s new Pecos (Tex.) production district, and **W. A. Mead** has been appointed superintendent of the new Artesia (N.M.) production district. Gipson was formerly assistant district superintendent at Odessa, and Mead has been production superintendent for Conoco at Abilene. **R. C. Lannen,** formerly assistant superintendent at Hobbs, N.M., succeeds Mead. Both new districts will be units of Conoco's Southwestern production department.

J. B. STOREY and **FRED R. SCHROEDER** were elected vice-presidents of Union Producing Co., Shreveport. Storey will be in charge of drilling and production, and Schroeder will be in charge of exploration. Storey became a director of the company, earlier this year, and Schroeder has been a member of the board since 1952.

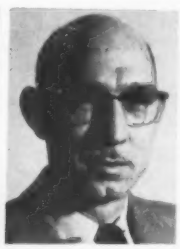
STEPHEN D. BECHTEL, JR., executive vice-president and a director of Bechtel Corp., San Francisco, has been named a director of Tennessee Gas Transmission Co., Houston.

A. N. BOYSE, former chief geologist for Permo Oil & Gas Ltd., has been appointed gas resources engineer for Alberta & Southern Gas Co., Ltd., Calgary.

F. M. COLE, vice-president of petroleum engineering since 1951 for Honolulu Oil Corp., San Francisco, has been promoted to vice-president in charge of the newly formed western division. The new division includes the western United States and Canada. Cole will also have charge of the development and producing operations in the recently formed northern Rocky Mountain division. **P. E. McGovney** will remain in charge of the northern Rocky Mountain exploratory operations.

G. M. HEBERT was appointed manager of the new export sales division of Enjay Co., petrochemicals marketing firm, with offices in New York. He has been sales manager for Paramins, Enjay's petroleum additives, in the New York office since 1956.

G. M. Hebert



W. L. Brady

W. L. BRADY has been named supervisor of Shell Oil Co.'s new Morgan City (La.) warehouse and terminal. Brady has been Shell's area storekeeper in Calgary.

L. H. LUKERT has been appointed research geologist at the Bellaire (Tex.) research laboratory of The Texas Co. **C. S. Boyer** succeeds Lukert as division geologist for the Oklahoma division of Texaco's domestic producing department, in Tulsa. He has been assistant division geologist for the Oklahoma division.

DAVID H. DURHAM has been named manager of retail sales for Sun Oil Co.'s central sales region in Pittsburgh. **Marlin C. Miller,** formerly manager of the Erie (Pa.) sales district, replaces Durham as district sales manager at Pittsburgh.

ROBERT R. RITTER is division development engineer for Canadian operations for Richfield Oil Corp., in Calgary. He succeeds **Charles E. Ensley,** who has transferred to Richfield's office in Long Beach, Calif. Ritter was formerly associated with the California coastal division at the Ojai office.

JACK O. O'BRIEN is exploration manager of the Calgary district for Tennessee Gas Transmission Co. He was formerly a district geologist for Tennessee Gas, also in Calgary.

ALDERIC SENECAL, JR., has become manager of Tidewater Oil Co.'s New York marketing district. Senecal has been an independent oil marketer in Philadelphia since 1952.

JACK A. HORNER was elected secretary of Shell Chemical Corp., New York. Horner, vice-president of Shell Development and secretary of its parent, Shell Oil Co., New York, succeeds **George E. Brewer,** who has retired. Horner will retain his present posts with both companies.

G. C. RICHARDSON has been elected a director of Cities Service Oil Co. (Del.), Bartlesville, Okla. He is manager of the supply and distribution division, at Bartlesville.

CLASSIFIED

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Progressive Oil Company seeking Assistant Manager of Refinery Sales. Duties include wholesaling of bulk products (gasolines and light oils) and customer contacts. Extensive experience in this type sales work and acquaintance in mid-west area required. Age 35 to 45. College man preferred but not essential. Travel and relocation in pleasant southern town. Comprehensive employee benefit program. Salary commensurate with background and experience. Write, giving detailed qualifications to:

P-8491, PETROLEUM WEEK
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Sales Executive—Small and rapidly expanding eastern seaboard oil company desires to employ individual with petroleum marketing experience to develop and direct sales personnel. Salary commensurate with experience. Send two background resumes. All information confidential. P-8470, Petroleum Week.

Petroleum Salesman—Small and rapidly expanding eastern seaboard oil company needs energetic retail and distributor oil salesmen. Gasoline and motor oil experience necessary. Salary commensurate with experience. Send two background resumes. All information confidential. P-8474, Petroleum Week.

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the box number when answering advertisements. It is the only way we can identify the advertiser to whom you are writing.

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Shale: Proved Emergency Reservoir

IT IS HEARTENING TO LEARN that the United States, in the time of national emergency, will have a plentiful supply of petroleum reserves within its own borders.

The assurance of a backlog reserve of liquid petroleum products essential to our national defense came in a recent statement by A. C. Rubel, president of Union Oil Co. of California, in announcing the closing of the firm's $9-million shale oil plant at Grand Junction, Colo.

In reviewing results of his company's shale oil research operations, Rubel said, "Union Oil Co. is in a position to produce shale oil and its products for Armed Forces and civilian use under a 'crash program' if foreign oil is shut off by such incidents as the Suez crisis or a political disturbance in the Middle East. All the time needed would be for steel fabrication and assembly of plants and pipelines. This is a very significant assurance, which we have never been able to give the nation before, and which, I am quite sure, no one else at this time can duplicate."

HERE'S WHAT UNION DEVELOPED during the operation of its shale oil plant:

(1) Information on mining methods, which will permit substantial improvement in mining procedures and costs.

(2) A continuously operating shale retort with a throughput in excess of 1,000 tons of shale per day and an output of more than 750 b/d of shale oil, with accompanying gas.

(3) A refining method that will produce from the crude shale oil liquid products to meet the severest specifications of civilian and military requirements, together with byproducts of sulfur, ammonia, coke, and excess gas for power generation.

Then why was the plant shut down? For the simple reason that operating data got ahead of Union's economic analysis. Now, Union will concentrate its attention in that direction. But it has already proved that, on the basis of a 25,000 b/d plant, semirefined products can be delivered to the Pacific Coast or comparable areas at costs comparable to products made from natural crude oil at presently posted prices.

UNION IS TO BE CONGRATULATED for its pioneering spirit in developing, at its own expense, a potentially large reservoir of petroleum for use in any emergency, when foreign supplies unquestionably would be cut off.

Congrats and $25 to J. A. LONG, Rua Uruguaiana 118 - 9° andar Rio de Janeiro, Brazil

Joe Roughneck, heart of the oil and gas industry, likes the convenience and economy of having Lone Star's ultra-modern pipe mill right in the middle of his workshop. Lone Star maintains the largest mill stock of API casing and tubing in the entire oil country. Delivery can be made overnight to 75 per cent of the active areas. Lone Star's recently enlarged plant is, more than ever, Joe Roughneck's solid source of supply.

Neighbor, wherever you are, specify Lone Star and we both get a good deal.

Lone Star STEEL COMPANY

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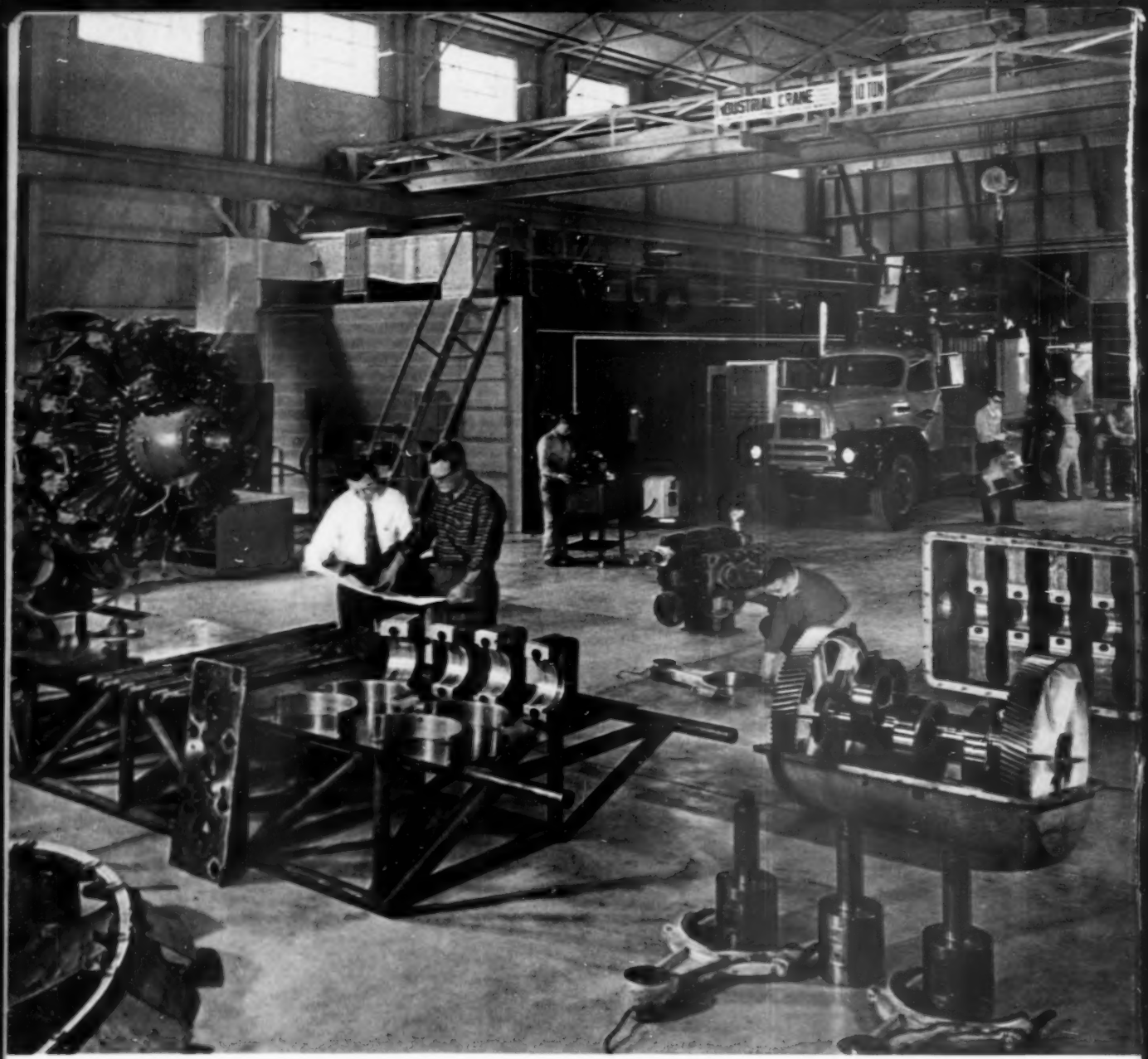
912 Republic National Bank Building, Dallas, Texas
Houston, Texas | Midland, Texas | Tulsa, Oklahoma



RESTRICTED AREA! For the Development of Dowell Equipment

The activity you see in this picture is classified . . . confidential. This is the building where Dowell engineers, technicians and research men combine their talents toward the development of new and better equipment. This is the Dowell Mechanical Research and Development Laboratory.

It was in this laboratory that the famous Allison aircraft engine was adapted for use on well treatment pumpers—an idea now widely approved throughout the oil fields. The staff of this lab is credited with developing, and proving successful, the revolutionary Densitometer—the device that provides continuous electronic weighing of cement slurries.

But the staff of this lab—like the other research groups at Dowell—doesn't look back, except to profit from experience. They deal in futures, searching for new ways to do jobs better—through better-engineered equipment.

Their newest ideas are confidential now. These ideas must be fully tested, proved and re-proved before release to the field. When all tests are complete, you have the assurance of knowing that Dowell equipment is *right for the job* and is the *best available*. Dowell, Tulsa 1, Oklahoma.

Services for the oil industry DOWELL

A SERVICE DIVISION OF THE DOW CHEMICAL COMPANY